Technical Support for Procurement and Project Management and Private Sector Participation to the Ministry of Water and Irrigation, Water Authority of Jordan and the Jordan Valley Authority

Support for Economic Growth and Institutional Reform:
General Business, Trade & Investment IQC

Contract No. PCE-I-00-98-00015-00
Task Order 814

Aqaba Water Company
Business Plan

July 2, 2004

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ACRONYMS

AA	Assignment Agreement
ASEZ	Aqaba Special Economic Zone
ASEZA	Aqaba Special Economic Zone Authority
AWC	Aqaba Water Company
BOD	Biochemical Oxygen Demand
BOT	Build-Operate-Transfer
DA	Development Agreement
DSCR	Debt Service Coverage Ratio
FA	Formation Agreement
FAS	Financial Accounting System
GAAP	Generally Accepted Accounting Practice
GOJ	Government of Jordan
JD	Jordanian Dinar
M3	Cubic Meter
M&AA	Memorandum of Association and Articles of Association
MCM	Million cubic meters
MIS	Management Information System
MOF	Ministry of Finance
MOP	Ministry of Planning
MOU	Memorandum of Understanding
MSR	Minimum Service Requirements
MWI	Ministry of Water and Irrigation
O&M	Operations and Maintenance
POP	Performance and Operating Procedures
PSP	Private Sector Participation
R.O.	Reverse osmosis
TAPS	Technical Assistance for Private Sector Participation
UFW	Unaccounted for Water
US$	United States Dollars
USAID	United States Agency for International Development
WACC	Weighted Average Cost of Capital
WAJ	Water Authority of Jordan
WTP	Water Treatment Plant
WUP	Water Utility Permit
WWTP	Wastewater Treatment Plant

Executive Summary

AWC's business plan embodies a comprehensive and systematic approach to achieving objectives, improving overall performance and monitoring the levels of service and organizational performance prescribed by law and in its various founding documents and legal agreements. Its main purpose is to provide a unified approach to gaining compliance with established regulatory provisions, achieving strategic goals and establishing the means for monitoring progress against plan. Representing the collective judgment of AWC's founding organizations, the plan is authoritative, yet sufficiently flexible to enable quick responses to changing conditions. Its main purposes are (i) to provide the Management Committee with a framework for setting and achieving objectives, formulating strategies and determining priorities and (ii) to assist the Regulators in assessing AWC performance against various regulatory standards.

The founders have a *vision* for AWC as a world class, cost-competitive, yet financially viable, utility distinguished by quality and reliability of its services. Responsiveness to prospective developers as well as domestic subscribers will also be a trademark. AWC is seen as a key component of the supporting infrastructure elements that will make ASEZ continue to be a vibrant and attractive economic growth center in the Region. The founders also recognize the status of AWC as a natural monopoly and have made provision for accountable and transparent regulatory supervision.

Mission Statement

The Mission Statement is based on guiding principles contained in the various founding documents and agreements. An abstract of AWC's mission statement includes the following points:

a) Anticipate the needs for expansion of service capabilities; be pro-active in expanding utility plant in advance of industrial, tourism and commercial developments
b) Maintain a safe and reliable supply of potable water
c) Expand water supply as required to preclude conditions of suppressed demand
d) Collect, treat and dispose of wastewater and residuals in compliance with health and environmental standards
e) Where feasible and allowable, provide for the reuse of treated wastewater
f) Expand wastewater service coverage to serve areas with piped water supply
g) Operate in an efficient and cost effective, sustainable and environmentally sound manner, and at prices that are affordable and represent value to consumers.
h) Achieve standards of excellence in performance of all functions that are consistent with "best of class" in comparison with other utilities worldwide

Core values and Key Concepts

AWC's core values are embodied in its status as a corporate entity – a business oriented organization established by law and the various founding documents and agreements. In its early stages following commencement of operations, it will undergo a process of commercialization wherein a governmental organization is transformed into a semi-

autonomous entity. Though remaining in the public sector, it will function in a more commercially oriented business environment. This initial "WLL" structure will serve AWC well in the near term. Longer term objectives however, are to expand autonomy, to completely eliminate government oriented practices and constraints and to create financial flows providing a competitive return of investment. At some future point, AWC may wish to consider selling shares to raise capital or to consider some form of private sector participation.

AWC will maintain close working relationships with the founding agencies and will establish a participative role in ASEZA's planning and development agencies so that it can better anticipate the needs for expansion of its utility plant to meet the needs of incoming industries, commercial entities and tourism developers. AWC will be regulated by the same agencies, WAJ and ASEZA, that own it and that provide its top level management. Until such time as an independent regulatory agency is established, care will be exercised to avoid the potential for conflicts of interest through the establishment of "fire walls" within WAJ and ASEZA to provide a clear separation between the regulating units and those units representing the owner/managers of AWC.

AWC will establish an attractive and safe working environment for its employees based on merit principles with competitive levels of compensation and benefits. Training programs will be established to provide optimum skill levels for positions currently held and to aid employees in career development. Financial goals are based on generation of sufficient income to maintain full cost recovery including all operating expenses, depreciation, debt service, meet working capital needs, fund mandatory reserve accounts and provide substantial levels of funding for capital investment programs.

Medium Term Development Goals

Goals and objectives for AWC are prescribed in significant detail in the various founding documents and agreements which are controlling with respect to the goals and objectives to be included in the business plan. These generally relate to services to be provided, institutional development, establishment of systems and procedures and establishment of minimum levels of service and operational performance. Guidelines for capital development programs are found in the Pre-Feasibility Report prepared by TAPS and submitted in January of 2003. The goals and objectives for the current business planning period are outlined under the following headings:

- General Services – provide all water and wastewater services efficiently and effectively in conformance with prescribed standards; plan, finance and implement capital improvement programs
- Management Programs – including establishment and operation of a management information systems, laboratory testing and analysis and emergency response plans
- Extraction and Transmission – concerning the extraction of bulk water from the Disi well field and transmission to the water distribution systems in the ASEZ and villages outside of ASEZ in Aqaba governorate
- Water Distribution and Wastewater Collection – detailed guidelines on the management of the water distribution systems and the wastewater collection system
- Billing and Collection – detailed guidelines on the design and operation of meter reading, billing and collections systems to be managed by AWC

- Customer Services – detailed guidelines on the establishment of customer service procedures and performance standards
- Testing and Laboratory Analysis – detailed instructions on laboratory procedures and performance standards
- Health and Safety Measures – detailed instructions on establishing safety programs and procedures including establishment of hazardous materials management procedures

Capital Improvement Program

AWC's initial long term capital improvement program, covering the period through the year 2028[1], is based primarily on the capital improvements identified in the Pre-Feasibility Report. The total program, covering water and wastewater requirements, is more than JD 150 million. At JD 92.5 million, investment in the wastewater system is the largest component of the program. After completion of the JD 25 million USAID financed program (completion is expected in 2005), the major portion of the remaining investments will be made for expansion of the collection system and rehabilitation of the existing collection system. Water system investments, at an estimated JD 59 million, focus primarily on improvements to the distribution system, construction of two desalination plants (one in the 2011-2012 period and the other in the 2017-2018 period), primary transmission lines and expansion of the distribution system. AWC will finance capital improvements through a combination of cash surplus funds from current earnings, funds from the Voluntary Reserve account and borrowing. Borrowing is limited to no more than 50% of the amount of issued share capital except as may be authorized by an Extraordinary Resolution of the MC.

Institutional Development

AWC's institutional development program consists largely of tasks mandated by the Development Agreement and the Assignment Agreement. The list of 29 mandated tasks includes requirements for the design and implementation of various systems and procedures and the establishment of other procedures to ensure compliance with stipulated performance standards[2]. Some of the mandated requirements stipulate that implementation must be completed within a specified period of time. Other mandated requirements do not specify the timeframe for implementation but AWC must assume that the intention is that implementation will be achieved promptly. TAPS will provide assistance in meeting these requirements as well as other institutional development tasks according to its prior recommendations. These consist primarily of continuing assistance in such areas as legal counsel, budgeting, financial modeling, evaluating financial performance, personnel management and compensation planning, capital investment programming, O & M training and business planning.

Operating budgets are projected in the Plan for 2004, 2005 and 2006. These projections indicated that AWC can earn net incomes in the range of JD 226,000 to JD 376,000 per year. The positive figures, though relatively small, are significant given that they reflect the deduction of JD 9.5 million for bulk water charges and JD 4.3 million in depreciation charges. Cash generation however, will exceed JD 5 million, permitting AWC to invest JD 3

[1] The year 2028 is selected because it is the design year used in preparing the engineering designs and cost estimates.
[2] AWC will undertake an initial assessment to determine which of the standards are currently not being met and undertake measures as may be needed to bring the situation into compliance.

million in general capital improvements while retaining cash reserves of more than JD 2 million.

Strategic Policies

The AWC will pursue its mission and objectives according to a comprehensive set of strategic policies. Strategic policies for AWC are drawn from various legal documents and agreements and are consistent with overall national, governorate and ASEZA policies for the region and the sector. Synopses of the principal policy guidelines for AWC are listed below.

- Policies governing water supply
  - **Meeting Consumer Demand** – maintaining close liaison with ASEZA, meet all requirements for service resulting from new investors/developers, eliminate suppressed demand, introduce demand management and increase coverage to 100% by 2008
  - **Source of Water Supply –** ensure protection of Disi resources, expand other sources, including desalination, where feasible and cooperate with developers desiring to establish their own water systems
  - **Water Treatment –** ensure compliance with water quality standards, carry out testing and laboratory analyses and prepare plans to cover water treatment emergencies and future quality control and quality assurance programs
  - **Distribution –** achieve service continuity of 24 hour per day, 7 day per week as soon as possible, prepare by-laws covering use of the system and relationships with customers, maintain comprehensive leak detection and repair program and establish a meter inspection, repair and replacement program

- Policies governing wastewater
  - **Collection system –** expand system coverage to include all customers with water service by 2008, conduct systematic sewer cleaning and preventive maintenance program, establish an emergency response capability to deal with flooding or back-ups during non-working hours, respond to customer complaints within 5 working days and make new sewer connections within 30 days of receipt of customer payment and establish and maintain a mapping system covering all system components including customer connections
  - **Wastewater Treatment –** establish operating procedures to ensure safety, reliability and to meet effluent standards; develop and enforce industrial pre-treatment standards
  - **Wastewater Disposal –** explore opportunities to expand reuse of treated wastewater and residuals of the treatment process and implement them where found feasible and allowed under applicable regulatory provisions

- Institutional development policies
  - **Marketing and Promotion** – establish an effective communications and marketing program to keep customers and prospective investors/developers well informed of AWC's plans, programs, activities and services; pursue diversification possibilities regarding the sale of reclaimed wastewater and residuals and development and operation of on-site water and wastewater facilities for private sector investor/developers in the Zone

- **Tariff Policies** – proposals for changes in tariffs must be processed by the Regulators and submitted to the Council of Ministers for approval; tariffs must be established in a manner that will produce revenues in conformance with the "Allowed Revenue Formula" described in POP 4 of the Development Agreement; tariff rates for non-residential consumers will not be increased until such time as tariff rates for residential consumers have been increased to a level that represents full cost recovery; AWC will continue to provide service on a "non-collectable" basis to consumers currently in that category, but will not extend subsidized service to any other consumers; tariffs will be structured separately for water and wastewater service, with billing made in a single bill based on water consumption; policies will be prepared dealing with such matters as disconnection of service for non-payment and disputed bills.
- **Accounting Policies –** general and cost accounting procedures will be commercially oriented and accrual based consistent with GAAP and prudent practice[3]; accounts will be audited quarterly and annually by an outside auditor selected by the Management Committee; the Regulators may also choose to appoint an auditor; the Management Committee may also establish an internal audit program; stores and inventory will be valued on a first in, first out basis and service charges will become revenue and receivable at the time of billing
- **Financial Reporting –** AWC will prepare and submit two quarterly reports, (i) un-audited financial reports and (ii) a more comprehensive General Manager's report, including audited financial statements; an annual report in a form to be prescribed by the Management Committee will be submitted to the shareholders and a comprehensive General Manager's annual report, with copies of audited financial statements, will be submitted to the Regulators; the quarterly and annual General Manager's reports will cover the management, operations and finances of the AWC, progress against business plan goals and targets, and reports concerning compliance with specific provisions of the AA and DA
- **Human Resources -** recruitment of new AWC staff will be based on qualifications and promotions will be based on merit and performance; training will be an integral part of an AWC employee's experience, providing improvement of skills needed for existing positions and preparing staff for advancement; personnel policies will be based on good and fair relations and competitive rates of compensation; safety will be a priority in all aspects of employment
- **Customer Relations –** AWC will establish a pro-active consumer relations program directed toward individuals and organizations to facilitate their dealings with the utility; consumer information programs will be conducted in print and electronic media for schools, community groups, business organizations and economic development agencies; responsiveness will be the hallmark of the program and prompt replies to all inquiries from the public will be made; decentralized customer service centers will be established for the convenience of customers

Measuring Operational and Institutional Performance

Under provisions in Appendix 4 of the AA, AWC is required to implement a computer based Management Information System (MIS) to (i) permit management of the entire physical

[3] FAS, currently being implemented with the assistance of WAJ headquarters staff, is expected to meet these requirements.

system, (ii) establish a Maintenance Management System, including inventory control and preventive maintenance, (iii) provide information on billing collection and customer services and (iv) a digitized mapping system. AWC must acquire commercially available software and the associated hardware within one year and complete implementation of the system and associated staff training by the end of the second year following the Effective Date.

The monitoring and reporting procedures described in the business plan will be integrated into the prescribed MIS and are therefore intended to serve as interim procedures that can be used to meet reporting requirements until such time as the officially required MIS becomes operational.

Design of the interim monitoring system involved (i) selecting performance indicators to be included in the reports, (ii) identifying input data needed to produce the indicators and (iii) preparing data formats and reporting systems. The Management Committee and senior executives of AWC will review periodic reports of progress against plan to identify problem areas and implement solutions as needed to maintain the programmed rate of improvements. Such reports will also be provided to the Regulators along with any additional information that may be required.

Initially, some of the data needed for the preparation of performance reports may be found lacking and some reports may have to be prepared using estimates or approximations where the required data is missing or of questionable accuracy. Such circumstances will be temporary in nature; AWC will quickly gain the ability to produce the accurate and reliable information it needs for reporting purposes.

Performance Standards

AWC must comply with numerous laws, standards, regulations and the provisions of various legal agreements. The business plan includes an organized approach towards ensuring compliance with all such requirements and for monitoring regulated activities and reporting on performance.

A total of 75 data elements have been identified for use in the monitoring and reporting system covering the operational performance for water supply and wastewater and the institutional performance of the Company as a whole. After gaining experience with the monitoring and reporting systems it may be necessary to modify data elements, add new elements or eliminate data that may not be necessary to collect.

Data elements are used to compute performance indicators that will be presented graphically in the periodic reports (quarterly, annually or at such other times as may be prescribed by the MC or the Regulators). Initially, AWC will report on 17 performance indicators that are intended to address the reporting requirements of the MC and the Regulators. Each performance indicator will be portrayed graphically, indicating actual performance against projected performance or targets to be achieved during the planning period. Textual material will accompany the graphs to provide additional information and to provide an assessment of the implications of the reported information. Tabular information will also be included in the reports, drawn from the list of 75 data elements and including such items as may be requested by the MC and the Regulators. The initial list of 17 physical and operational performance indicators is provided below.

- Physical Indicators for Water Supply
  - Population served vs. total population
  - Water production, consumption and leakage
  - Water service reliability and response time performance
  - Compliance with water quality standards
  - New connections and connection costs
  - Pressure levels at service connections not meeting standards

- Physical Indicators for Wastewater
  - Wastewater service coverage in areas also covered by the water system
  - Quantity of wastewater treated and reused
  - System service interruptions and treatment plant by-passes
  - Compliance with discharge standards, BOD and TSS
  - New connections and connection costs

- Institutional Performance Indicators
  - Staffing level per 1,000 connections
  - Recurrent costs
  - Recovery of recurrent costs
  - Tariffs and projected tariffs to meet allowed revenue
  - Accounts receivable and collection efficiency
  - Response time to subscriber inquiries and complaints

Data used in the computation of performance indicators and reports is ***hypothetical*** and is not intended to represent the prior situation in WAJ Aqaba or the conditions expected the to occur under AWC jurisdiction. AWC will collect data specific to Aqaba (or prepare estimates) to produce reports covering its first quarter (partial) of operation. An example of a report segment covering one performance indicator, employing hypothetical data, is shown below. The graph shows how a report prepared in 2006 would appear, wherein the actual results were available and shown in the graph for 2004, 2005 and 2006.

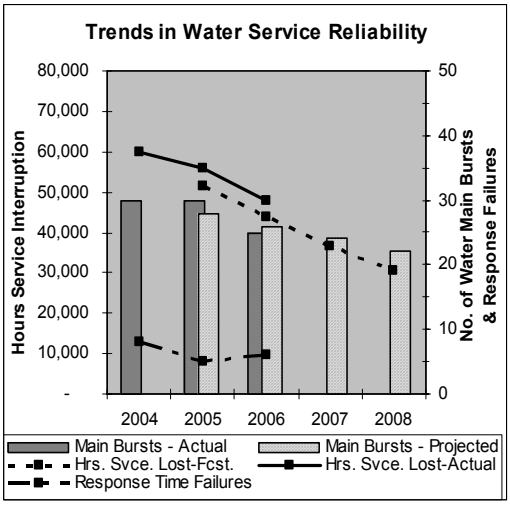


Figure 2.1.3 Trends in Water Service Reliability

Interruptions in service at various locations in the system due to main bursts (breaks or leaks) presently occur 2.5 times each month, affecting an average of 250 properties. The AWC is undertaking various programs designed to reduce service interruptions through leak detection and main replacement/rehabilitation. It is also implementing programs designed to reduce the impact of service interruptions through network strengthening, valve maintenance and installation and improved maintenance management techniques. Compliance with response time requirements was maintained with only a few exceptions. Responsiveness will continue to be a priority until 100% compliance is achieved. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

SECTION I

Vision and Purpose of the Business Plan

1.1 Background

AWC's business plan embodies a comprehensive and systematic approach to achieving objectives and monitoring the levels of service and organizational performance prescribed by law and in its various founding documents and legal agreements. Though difficult to summarize in brief, the purpose of a business plan is to provide a unified approach to gaining compliance with established regulatory provisions, achieving quantified performance goals and establishing the means for monitoring progress against plan.

AWC's initial business plan covers a four and one-half year period from August 1, 2004 to December 31, 2008[4]. The Management Committee and executive management of AWC have the authority to select a different planning horizon if they choose to do so.

1.2 Plan Strengths

The Business Plan represents the collective judgment of the Management Committee members and executive management of the utility with due regard to the opinions of other decision makers at local, regional and national levels. Once officially adopted, it can be considered authoritative in providing guidance to executives and managers on a day-to-day basis. The Plan is sufficiently flexible through its monitoring and annual updating processes to enable quick responses to the dynamics of government policy and programming and unexpected events and circumstances.

1.3 Limitations of the Plan

The Business Plan, especially this initial document, is based on the best information available at the time of its preparation and subsequent updating. Until AWC is able to develop baseline data on service levels and performance and becomes capable of consistently producing reliable data on a timely basis, the ability to monitor progress against plan will be constrained.

1.4 Performance Measurement

A number of indicators have been identified for use in measuring AWC's performance in meeting its goals and objectives as well as the standards of performance prescribed through the regulatory process. A number of such indicators are minimum performance standards to be enforced under the terms of the Development Agreement (DA) and Assignment Agreement (AA). Other indicators and targets are established by AWC for setting standards higher than those included in the DA or for areas of performance not covered by standards prescribed by the DA. When the organization's management information system (MIS) becomes fully functional, it will be possible to accurately monitor its progress on a timely basis, thus permitting the Management Committee and executive management to identify problem areas and take prompt corrective action before problems become intractable.

[4] Subsequent plans will encompass full five year periods.

1.5 Vision for AWC

The vision for the AWC is comprised of the following provisions drawn from several of its principal founding documents:

- AWC will provide the Zone with world class, cost-competitive water and waste-water services distinguished by quality, quantity and reliability so as to make the Zone an important commercial, logistical and tourism hub (MOU)
- AWC will be operated as a financially viable, self-sustaining entity that will be run under commercial principles and promote private sector participation (MOU)
- AWC will help maintain the competitive advantage of the ASEZ through cost-competitive pricing, efficient, high quality of water and waste-water service including expedient access to services for new users. (MOU)
- To support Aqaba Special Economic Zone's sustainable socioeconomic development and continued competitiveness, AWC will provide an efficient supply, distribution, development, protection and management of water and wastewater to the highest standards of international best practices (DA)
- AWC will be regulated with due consideration to the principle that the provision of water and wastewater services represents a natural monopoly which requires accountable, participative, transparent, regulatory supervision to ensure best practices.

1.6 Purpose of the Plan

The purpose of this plan is comprised of three main elements:

- To provide the Management Committee and senior executive staff with comprehensive guidelines for achieving its mission and the objectives, regulatory standards and performance targets prescribed by law and its various founding documents and legal agreements.
- To provide a framework for formulating strategies, setting priorities and establishing the information and reporting systems required for effective monitoring of progress against plan.
- To assist the Regulators and other interested and involved parties in evaluating AWC's management and operational performance and it's prospects for achieving compliance with established regulatory provisions and achieving quantified performance goals.

SECTION II

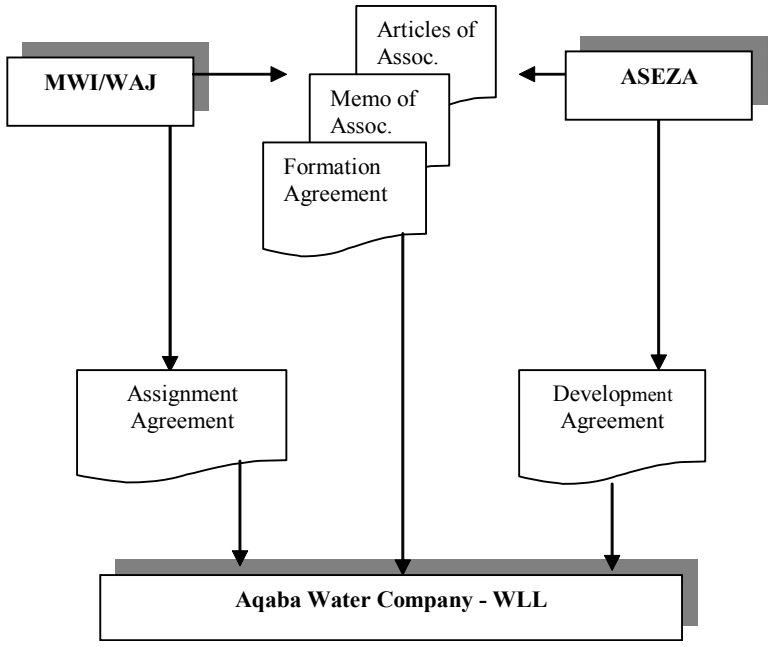
Mission Statement

2.1 Formulation of the Mission Statement

The Mission Statement is an expansion of the *vision* for AWC, establishing the organizational profile that guides the process of setting standards for the provision of its services and its performance as a public utility. In AWC, service levels and operating performance at the time of handing over of operational responsibility may be below the levels envisioned for the future. The Mission Statement therefore, reflects the mid- to long-term targets for improvement of services and operating performance.

In Jordan in general and specifically in the ASEZ, there are established plans, standards, regulations, and other public policies which aid in defining and updating the missions of government organizations, enterprises and authorities. These include economic development and master plans for ASEZ, public health standards, environmental regulations and other standards that may be established by ASEZ. Economic regulation applicable to AWC is expected to be managed through contractual provisions. In the medium term, a comprehensive regulatory regime for the water sector is expected to be established that would supercede the contractual regulatory approach.

There are a number of source documents that provide guidance (that in fact are controlling) concerning the content of the mission statement and most of the remaining elements of the Business Plan. These documents and their relationships with the parties involved in the formation of AWC are illustrated in the adjacent chart.



During the initial stages of the process of establishing AWC, the parties involved (MWI/WAJ and ASEZA) entered into a Memorandum of Understanding which provided the guiding principles for all subsequent agreements that provided the basis for the company's formation. The parties then executed the Company Formation Agreement, Articles of Association and the Memorandum of Association (together, the three documents are also referred to as the Registration Documents) that are the documents to be registered with central authority to legally establish the company. Two additional key documents govern all aspects of AWC's activities, the Assignment Agreement executed by MWI/WAJ with AWC and the Development Agreement executed by ASEZA with AWC. It should be noted that ASEZA is

empowered to assign some or all of its powers to the Aqaba Development Corporation for conduct of the business between AWC and the Authority.

2.2 Guiding Principles

Relevant statements taken from the legal documents that provided guidance in drafting the mission statement are shown below.[5]

- Regulatory Principle - The provision of water and wastewater services represents a natural monopoly which requires accountable, participative, transparent, regulatory supervision to ensure best practices
- Water Obligations – AWC shall:
    a. Procure a sufficient quality and quantity of Water on the most cost effective basis, ……., to satisfy …..needs of consumers in the Service Area in a timely, transparent, cost effective, consistently reliable and readily accessible manner.
    b. Own, design, develop, construct, maintain, operate and manage those assets and that infrastructure to ….. Prudent Industry Practice as necessary to collect, store, preserve, protect, purify, treat, pump, transmit, treat, distribute and otherwise deal with water of sufficient quality and quantity to satisfy …..customer needs …. in a timely, transparent, cost effective, consistently reliable and readily accessible manner.
    c. Sell, lease, rent or deliver water to consumers …. to meet their ….needs in a timely, transparent, cost effective, consistently reliable and readily accessible manner.
- Wastewater Obligations – AWC shall:
    a. Collect wastewater … on the most cost effective basis to satisfy the waste management needs of consumers in a timely, transparent, cost effective, consistently reliable and readily accessible manner.
    b. Own, design, develop, construct, maintain, operate and manage those assets and that infrastructure to those standards of Prudent Industry Practice necessary to collect, store, process, treat, purify, pump, recycle, reclaim, transmit, distribute, discharge, dispose of wastewater, including any sludge and other waste to satisfy the waste management needs of consumers in a timely, transparent, cost effective, consistently reliable and readily accessible manner.
    c. Charge reasonable fees or such other consideration to deal with Wastewater as contemplated by Paragraph 14.2 in the DA
- General – AWC shall:
    a. Maintain sufficient resources, including human resources and capital assets to realize its obligations hereunder
    b. Perform such other functions and undertake such other tasks which may be reasonably inferred as being required to realize its obligations hereunder and tasks customary performed as part of Prudent Industry Practice.

[5] Paraphrased from the Development Agreement, Part 6, Sections 12-16

2.3 Mission Statement

In conformance with the applicable provisions of relevant laws, agreements and the founding documents, and to support ASEZA's sustainable socio-economic development and competitiveness, the AWC will undertake to:

a) Anticipate the need for expansion of service capabilities for both water and wastewater through participation in ASEZA's planning and development activities
b) Undertake expansion projects on a pro-active basis to meet the growth in demand expected by the influx of industrial and commercial developments, the growth in tourism and associated need for expansion of residential communities.
c) Maintain a safe and reliable supply of potable water in the ASEZ and in the rural areas of Aqaba Governorate
d) Expand water supply as required to preclude conditions of suppressed demand and to meet increases in demand caused by population growth and commercial and industrial development in ASEZ
e) Collect, treat and dispose of wastewater and residuals in a safe and environmentally acceptable manner in compliance with environmental standards, including those set by ASEZA if more stringent than others
f) Identify and implement programs for the reuse of treated wastewater in a practical, safe and economically sound manner in accordance with applicable Jordanian standards
g) Expand wastewater collection and disposal systems as needed to cover areas served by pubic or private water supply
h) Provide services in an efficient and cost effective and environmentally sound manner, with cost recovery established to assure long-term sustainability and at prices that are affordable and represent value to consumers.
i) Seek to achieve standards of excellence in performance of all functions that are consistent with "best of class" in comparison with other utilities worldwide

SECTION III

CORE VALUES AND KEY CONCEPTS

3.1 Characteristics of the New Utility

In the broadest sense, the objectives of the AWC are to achieve the levels of service and standards of performance that can be derived from its Mission Statement. While seeking to satisfy the criteria outlined in its Mission Statement, the AWC will pursue sub-sets of objectives that are qualitative in nature and introduce the element of timing for reaching the stated objectives.

3.1.1 The AWC as a "Corporate Entity"

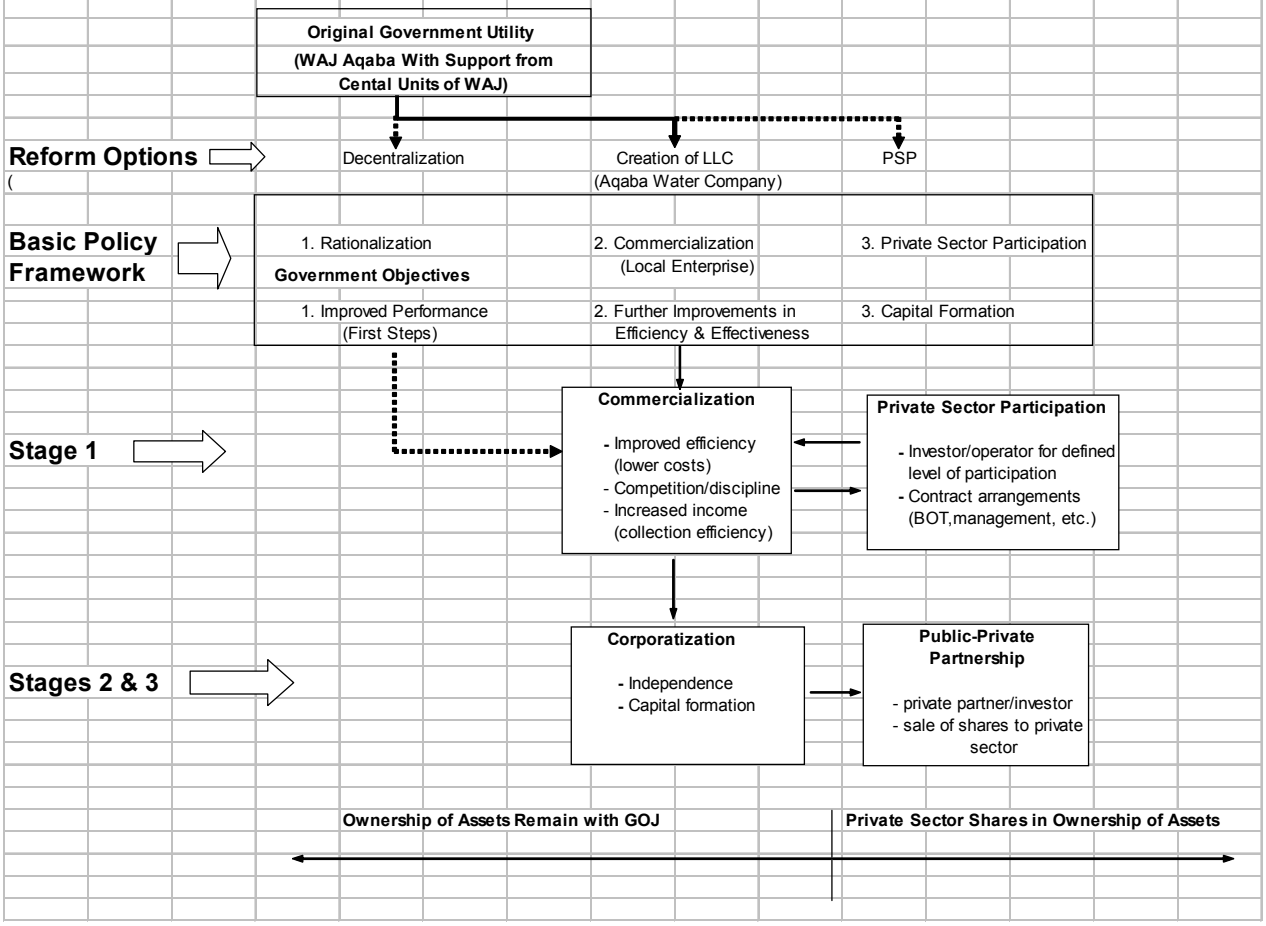
The AWC will function within a framework established by law, relevant contracts, agreements and its founding documents and by-laws. Near term business plan objectives represent the initial steps in the process of commercialization or corporatization wherein a government organization is transformed into semi-autonomous entity. Although AWC will remain within the public sector, a more commercially oriented business environment will be established and the first steps in establishing a corporate entity will be taken.

The AWC's "WLL" structure is expected to serve it well in the near to medium term (e.g. 2 to 5 years). A longer term objective however, is to expand autonomy, eliminate government oriented practices and constraints altogether, create financial flows providing a competitive return on investment and thus establish a fully "corporatized" entity. At this future point in time, the AWC may implement the steps necessary to allow it to sell shares to raise capital, to introduce private sector capital and expertise according to one of several options, or it could remain fully under public ownership. In any of these cases, by meeting the performance targets set forth in its business plan, AWC will become an established corporate entity by the end of the first plan period.

Figure 3.1 illustrates how the initial establishment of AWC fits into the optional development patterns for the conversion of governmental utilities into corporate entities. A newly established utility starts at the point indicated at top row of the chart, where it is formed from the original government entity. All three reform options involve decentralization, the first involving decentralization with limitations as a first step. The second option also involves creation of a public company and conversion of the utility into a commercial oriented organization. The third option makes the transition from a government organization directly into a fully decentralized utility with significant private sector involvement. MWI, WAJ and ASEZA have selected reform option 2 involving decentralization and creation of a commercialized/corporatized public company to begin operations on August 1, 2004.

Figure 3.1

Transitional Stages in the Conversion of Fully Governmental Utilities into Corporate Entities



3.1.2 The AWC, Its Principal Client and Customers

One of the AWC's principal objectives is to establish and maintain good relations with ASEZA, MWI, WAJ, any regulatory entity with jurisdiction and its customer base. Lines of communication and coordination will be established between AWC and the "official" entities to provide assurances of adherence with public policy, development objectives and regulatory requirements. AWC will also establish community outreach programs and take the steps necessary to assist customers in obtaining information, gaining redress to their concerns and expressing their views on AWC's services. The AWC will also establish decentralized customer service centers to facilitate customer/utility business relationships.

Further, AWC working with the planning and development units within ASEZA, will establish and maintain relationships with the private sector and appropriate government agencies concerning plans for industrial, tourism and commercial developments within its service area, so that it can be prepared to meet the expanding demand for its services from those sub-sectors and the associated residential communities. AWC will also remain alert to impending changes in policies, plans, and programs of ASEZA that may affect its mission statement, objectives and programs and will maintain communications with ASEZA to keep informed on all such matters.

3.1.3 Relationships With Regulatory Agencies

For the near term, AWC will be in the position of being owned and directed by entities (MWI/WAJ and ASEZA) that will also serve as regulators of many of its activities and operations. As such, the owner/director agencies have the ultimate responsibility for assuring compliance with regulations that they enforce. AWC will be regulated by WAJ through the AA and by ASEZA through the DA. These relationships will apply until such time as the Government has established a national agency to regulate the provision of water and wastewater in Jordan. Until such time as an independent regulatory agency is established, care will be exercised to avoid the potential for conflicts of interest through the establishment of "fire walls" within WAJ and ASEZA to provide a clear separation between the regulating units and those units representing the owner/managers of AWC.

The division of regulatory responsibility between WAJ and ASEZA is summarized briefly as follows:

- ASEZA's regulatory authority over water and wastewater utilities applies to assuring compliance with (i) the Performance and Operating Procedures (POP) contained in Appendix C of the DA, and (ii) the Minimum Service Requirements (MSR) contained in Appendix B of the DA; AWC must demonstrate compliance with such provisions in order to obtain and continue to hold a Water Utility Permit (WUP) from ASEZA; a valid WUP is a necessary prerequisite for AWC to function in the ASEZ (see also paragraph 6.4.2 in Section VI below).
- ASEZA will also appoint an Inspector, and Adjunct Inspectors as required, who will have full access to all AWC facilities, operations, staff, files and documents and authority for the purpose of ensuring compliance with all regulatory provisions
- WAJ's regulatory authority over water and wastewater utilities extends to assuring compliance with regulations governing the supply of water including the technical standards that apply to providers of water and wastewater services throughout

Jordan; minimum requirements are set forth in Section 12 and Appendix 7 of the AA.

- In instances wherein it is not clear which agency has regulatory authority, WAJ and ASEZA will exercise their best cooperative efforts to determine which of them is responsible; in some instances, WAJ and ASEZA will exercise regulatory authority jointly

Regulations that are applicable due to the ASEZ Law cover such matters as registration as a registered enterprise, financial accounts and environmental assessments concerning the extraction of groundwater and development of wastewater plants (see Appendix 11, AA). Other agencies with regulatory authority include the Ministry of Health (Appendix 11, AA) and the Ministry of Environment (Appendix 12, AA). The Council of Ministers has ultimate authority over rates and tariffs. In general, with respect to all its relationships with regulatory bodies, AWC's objectives are to meet if not exceed all regulatory requirements.

A number of other statutory provisions or ministerial regulations may also be applicable in controlling such activities as financial management, personnel administration and procurement governing state owned enterprises. AWC will identify such controls and establish the means for assuring compliance.

3.1.4 Employees

Within the constraints that may be established by relevant existing regulations, the AWC will establish a personnel system based on merit with competitive compensation levels based on job requirements and employee qualifications and salaries paid for similar work in the private sector. The overall conditions of service will be optimized within economic constraints, and a safe and healthy work environment will be provided. Training programs will be established to meet AWC requirements and aid employees in career development.

3.1.5 AWC Finances

The AWC's mid-term objective is to generate sufficient revenue from tariffs and service charges to cover all recurrent expenses including depreciation, maintain a satisfactory level of working capital, cover debt service charges, voluntary and/or mandatory reserve accounts and to generate sufficient cash to make substantial contributions toward its capital investment programs. Revenues to be generated from wastewater operations will have the same recovery target set for water operations and will include revenues from the sale of reclaimed (reuse) water to be sold to government and private organizations.

Implicit in the statement of this objective is a definition for the level of recurrent expenses to be covered, which must be based on the optimum level of O&M costs. Likewise, expenses for managerial, administrative and supporting functions must also be set at optimum levels. AWC will strive to improve operating efficiencies to keep O&M costs at the lowest possible levels consistent with best management practices.

3.2 Formulation of Objectives

AWC's objectives incorporate those specifically set forth in the relevant legal agreements plus at least the five items listed above with modifications to reflect the unique local circumstances in Aqaba/ASEZ and the rural areas of the governorate to be served by AWC.

Objectives for inclusion in the AWC business plan have been formulated based on the five the core values and concepts outlined above as well as the objectives specifically set forth in the relevant legal agreements. The list of principal powers and objectives for AWC as stated in the Articles of Association is shown below and is indicative of those considered in the formulation of the Business Plan objectives.

- The main objectives and powers of the Company are to obtain a sufficient quantity and quality of water to satisfy demands of consumers in the Aqaba Special Economic Zone ("ASEZ") and the Aqaba Governorate in a timely, transparent, cost-effective, consistently reliable and readily accessible manner.
- The Company shall give priority to use of water supply from the Disi well field until the present system reaches its full capacity, after which water resources shall be obtained on the most cost effective basis.
- Own, design, develop, construct, maintain, operate and manage those assets and that infrastructure to those standards of international best practices necessary to efficiently and effectively extract, store, preserve, protect, pump, transmit and otherwise distribute water of sufficient quality and quantity to satisfy the demands of consumers in the ASEZ and the Aqaba Governorate in a timely, transparent, cost effective, consistently reliable and readily accessible manner.
- Sell, lease, rent, deliver water in the ASEZ and the Aqaba Governorate in pursuit of Articles 2.1.1 and 2.1.2 *(Articles of Association)*
- Own, design, develop, construct, maintain, operate and manage those assets and that infrastructure to those standards of international best practices necessary to efficiently and effectively collect, store, process, treat, purify, pump, recycle, reclaim, transmit, distribute, discharge, dispose of and otherwise deal with wastewater generated by consumers in the ASEZ and the Aqaba Governorate, including treated water, any sludge and other waste arising therefrom, in a timely, transparent, cost-effective, consistently reliable and readily accessible manner.
- Charge a fee or such other consideration to deal with wastewater as contemplated by Article 2.2.1 herein *(Articles of Association)* and the right to sell, lease, rent, deliver or otherwise alienate treated wastewater.
- Promote efficient and effective use of water resources, disposal of wastewater, and use of treated wastewater by consumers in the ASEZ and the Aqaba Governorate through means which may include, inter-alia, public education and appropriate tariff mechanisms as authorized by applicable law and contracts.
- If determined feasible and allowable under applicable laws and agreements, the Company may undertake those objectives contemplated by Articles 2.1 and 2.2 herein *(Articles of Association)* outside of the ASEZ and the Aqaba Governorate.
- Earn a market-related return on investment customary to the water and wastewater industries, as benchmarked against international best practices, for the Company's shareholders. (Editor's note: the ROI is actually earned by and for the AWC, not the shareholders; compensation to shareholders is paid out a portion of earnings in the form of dividends.)

SECTION IV

Medium Term Development Goals

AWC anticipates the need to make substantial investments in utility plant and to implement the institutional development program prescribed in the founding documents and as recommended by TAPS in order to achieve its goals and objectives for the planning period. The capital programs for water and wastewater are defined in terms of the rehabilitation and expansion of utility plant needed to achieve service and performance targets. The institutional program is defined in terms of specific requirements of the AA and DA and TAPS recommendations.

The capital and institutional programs identified in the Pre-Feasibility Study provide the basis for many of the program elements. As AWC gains experience participating with ASEZA's planning and development agencies and familiarity with the dynamics of development in ASEZ, it will likely be necessary to make periodic adjustments to the capital development program.

4.1 Services Program

As indicated in the Assignment Agreement, AWC will provide services as follows:

a. Perform the work described in Annex 4 of the AA, providing all staff, plant and equipment to perform water and wastewater services, and support services including, management, accounting, personnel systems, financial, technical, design, operations and maintenance expertise necessary to provide the services and achieve the performance standards described in Section VI and Annex 2.
b. In addition to providing all staff and resources required to perform the services, AWC will perform all work that may not be specifically mentioned in the Assignment Agreement but that can be reasonably inferred as being customary in prudent utility practice.
c. AWC will provide its services in the Service Area consisting of the area of ASEZ and that portion of Aqaba Governorate lying outside ASEZ. AWC acknowledges its obligation to participate in improving the economic and social conditions in low income areas outside of ASEZ by providing services to users with service charges that, to date, have been non-collectable. Such obligation will be fulfilled pursuant to AWC's Management Committee decisions based on feasibility results and policies determined by the Council of Ministers.

AWC will obtain adequate levels of liability and property damage insurance as provided in Article 10 and Appendix 9 of the Assignment Agreement.

4.2 Capital Improvement Plan

AWC's capital programs for water and wastewater are described in the Pre-Feasibility Study, Sections III and IV. Investments required during the first business planning cycle are relatively small as shown in Tables 4.1 and 4.2 and in the following sections.

4.2.1 Capital Program – Water Supply

Water supply investments are planned for rehabilitation and expansion of the distribution system, transmission lines and reservoirs (including break pressure tanks) and desalination plants A breakdown of projected investments in water facilities though the year 2028 is shown in Table 4.1.

Table 4-1. Recommended Plan for Aqaba Water Facilities

Facilities	Overall Capital Cost (000) JD	Construction Phasing
Distribution Rehabilitation Flow Control SCADA Instrumentation System Reservoir Meters Well Meters Well Restoration	**1,341**	**2004—2008**
Distribution Expansion Distribution Disconnection Program Pressure Reducing Valves/ Primary Metering Secondary Distribution Expansion System Isolation Valves Small Pipeline Replacement	**5,978**	**2003—2010**
Reservoir (Storage) Improvements High Level Reservoir Low Level Reservoir Wadi 2 Reservoir Pressure Break Tank 1 Pressure Break Tank 2 Wadi Yutum Reservoir	**1,722**	**2006—2011**
Primary Transmission Lines Wadi Yutum Transmission Line Industrial Zone Pipeline Low Pressure Zone Transmission Line High Pressure Zone Transmission Line South Coast Transmission Line	**6,667**	**2004—2010**
General Distribution Improvements Periodic Pipe Replacement Periodic Pipeline Expansion Ongoing Meter Replacement Well Pump Replacement Mechanical/Electrical Improvements	**19,278**	**2011--2028**
Desalination Phase 1 Reverse Osmosis Plant (5 MCM/Year)	**10653**	**2011—2012**
Desalination Phase 2 Reverse Osmosis Plant (5 MCM/Year)	**10,653**	**2017—2018**
Ongoing Desalination Capital Membrane Replacement Phases 1 and 2	**2,683**	**(Each five years following installation)**

4.2.2 Capital Program – Wastewater

A new wastewater treatment plant for Aqaba with an estimated cost of JD 25.5 million is being developed with the assistance of USAID. The plant and associated reuse water system are under construction and scheduled for completion in 2005. Related work being undertaken concurrently involves rehabilitation of a pumping station and gravity sewers. Work scheduled for completion in the first business planning period includes expansion of the collection system and development of a new treatment plant for the South Coast, estimated at approximately JD 1.95 million. A breakdown of projected investments in wastewater facilities though the year 2028 is shown in Table 4.2.

Table 4-2: Recommended Plan for Aqaba Wastewater Facilities

Facilities	Overall Capital Cost (000) JD	Construction Phasing
USAID Program Wastewater Treatment Plant Pumping Station Rehabilitation Gravity Sewer Rehabilitation Water Reuse System	**25,462**	**2003—2005**
Collection System Expansion Collection System Pumping Station Extensions	**41,900**	**2005—2020**
South Coast Wastewater Treatment Plant Pumping Station Force Main Gravity Collection System	**1,945**	**2005—2006**
Wastewater Collection System Rehabilitation	**23,240**	**2015—2028**

4.2.3 General Capital Works

In addition to the major water and wastewater facilities to be developed, AWC must invest in such items as water and sewer extensions, connections, mobile equipment, vehicles, water meters, computers, laboratory facilities and equipment, workshops, garages and various types of administrative buildings. Budget estimates[6] for such items during the first planning period are included in the summary of capital requirements shown in Table 4.3.

4.2.4 Capital Program Summary

A summary of the projected capital expenditures for water and wastewater during the initial business plan period is presented in Table 4.3.

Table 4.3: AWC Summary of Estimated Capital Investments
Initial Business Planning Period, 2004 – 2008
JD - 000

Water	2004	2005	2006	2007	2008
Distribution Rehabilitation Program	**844**	**282**	**0**	**128**	**87**
Distribution Expansion Program	**113**	**57**	**476**	**472**	**1,582**
Reservoir Improvements	**0**	**180**	**675**	**219**	**277**
Transmission	**124**	**0**	**367**	**473**	**567**
Total Water Cost	**1,081**	**519**	**1,518**	**1,292**	**2,513**
Wastewater					
USAID Program	**12,731**	**12,731**		**-**	**-**
Add'l Sewer Exten. (Extrapolated from TSG)	**-**	**1,636**	**1,636**	**-**	**-**
South Coast Facilities (Assumed Start Time)	**-**	**1,145**	**800**	**-**	**-**
Total Wastewater Cost	**12,731**	**15,511**	**2,436**	**-**	**-**
Sub-Total	**13,811**	**16,030**	**3,954**	**1,292**	**2,513**
General Capital Costs, Water & Wastewater	**700**	**1,300**	**1,350**	**1,100**	**1,400**
Grand Total	**14,511**	**17,330**	**5,304**	**2,392**	**3,913**

[6] Three Year Budget, approved by the Management Committee on June 19, 2004.

4.2.5 Financing for Capital Investments

Borrowing will be used to provide funding, in part, for capital projects. Total lending will not exceed 50% of the amount of issued share capital plus the amount of any share premium account, if any, without the prior sanction of an Extraordinary Resolution. The Voluntary Reserve Account and/or cash surplus funds generated each year may also be used in funding capital projects.

4.2.6 Reconciling Corporate Plan Targets and Capital Programs

The initial task in capital investment planning for AWC involves making assessments of how well the identified capital plans and programs address the objectives and policies of the Business Plan; if there is variance between the two, AWC will take the necessary steps to reconcile the variance.

For subsequent capital planning exercises, say for the period 2009 – 2013, the Committee Members and senior staff will have had five years experience to assess how well initial estimates of population growth and economic development have matched actual experience. At that time, it may be decided to implement capital development with a shorter design horizon (continuing the longer time horizon for planning purposes) and employing a greater degree of staged development with modular designs and smaller increments of investment.

4.3 AWC's Institutional Development Program

Much of AWC's initial institutional development program is covered in various provisions of the Assignment Agreement and the Development Agreement. These provisions generally relate to the establishment of new/revised systems and procedures; they are highly prescriptive and in some instances set detailed performance criteria. Timeframes allowed for compliance range from requirements for *completion prior to the Effective Date* to requirements for *completion over a two year period following the Effective Date*. A list of these requirements is provided in Table 4.4 below.

TAPS principal functions during the initial phases of AWC operations will be to provide assistance to AWC as needed in carrying-out the foregoing stipulations and in providing assistance in making AWC operational, beginning with the steps needed to achieve the Commencement Date. These activities constitute TAPS' principal functions during the remainder of 2004, summarized as follows:

a) Provide legal counsel on matters to be resolved by the Management Committee
b) Provide advice and consultation on budgeting, financial planning, billing and collection and related financial matters.
c) Provide advice and consultation on institutional matters including personnel management, certification programs and the like
d) Provide advice and consultation on technical matters such as preparation of terms of reference for a desalination facility, training for operations and maintenance and feasibility analysis of smart card metering
e) Provide general advice and consultation on business plan implementation and public and consumer relations

Table 4.4 - Actions & Performance Standards Required By The AA & DA

Note: **A** – Indicates Required Action, **S** – Indicates Performance Standard

S/A	Description	Reference
A	1. Establish a Management Information System (MIS) - select and obtain software, **within 1 yr. of Effective Date** - obtain hardware & implement, **within 2 yrs of Effective Date** Note the need to reconcile terms in the AA with those in the DA.	AA, Append 4, Par. 4.2.1, POP 17
A & S	2. Establish comprehensive testing and laboratory analysis program covering raw water, water distribution system, wastewater effluent analysis, reuse water, sludge, industrial waste, reservoirs and pumping stations. Coordinate with water quality standards in POP 9 & 10; **time frame for implementation is not specified**. See item #29 below for special provisions relating the industrial wastewater	AA, Append 4, Pars. 4.2.2 , 4.2.4 and Appendices 7 & 8, POP 9, 10 & 11
A	3. Establish an emergency response plan and procedures covering all risks, and provide training within **180 days of the Effective Date**.	AA, App. 4 Sec. 4.2.3
S	4. Achieve & maintain water supply and wastewater service on 24/7 basis, service to subscribers on 24/6 basis (target perf. of 24/7); **timeframe for implementation not specified**	DA, POP 3.2, AA, par. 4.4.1, c
S	5. Respond to all water main breaks within 6 hours of the first report.	AA, par. 4.4.1, e
S	6. Maintain pressures at the service connection within the range of 2 bars (30 PSIG) and 8.5 bars (125 PSIG) or 10 bars (150 PSIG) under conditions of hourly minimum pressure demand; allowed minimum pressure range in designated pressure areas is 1.7 bars (25 PSIG) and 1.36 bars (20 PSIG); variances for normal operating conditions not to exceed 50% of average pressures.	DA, POP 3, pars. 3.2 & 3.3 AA, Append. 4, 4.4.1, f
A	7. Establish comprehensive leak detection and repair program incorporating procedures for monitoring system pressures; **timeframe for implementation is not specified.**	POP 3.5,g AA Append. 4 Par.4.4.1, i
A	8. Prepare detailed account (baseline study) of the quantity of Disi water distributed to customers within ASEZ vs. the amount distributed to customers in subsidized villages outside of ASEZ **within six months of the Effective Date**; the report will be used by WAJ in determining Bulk Water charges and for consideration of a Prospective Bulk Water Agreement	DA, Article 16, Preamble, AA par. 8.8.2
A	9. Update and upgrade customer services and customer information, and billing and collecting systems using computer technology as appropriate with linkages to the MIS; **timeframe for implementation not specified;** see item 20 below for more detailed specification contained in MSR 9 and specific time requirements for compliance.	AA Appendix 4 Secs. 4.5 & 4.6, (see also MSR 9)
A	10. In coordination with WAJ, ASEZA, the Governorate and related agencies in the Zone, develop a public information program **immediately after the Execution Date**	AA Appendix 4 Sec. 4.6, h & i
A	11. Conduct training for staff that deal with subscribers **within 30 days of completion of the improved customer services system**	AA Appendix 4 Sec. 4.6, g
S	12. Respond to requests for water or wastewater connections within 5 working days of receiving the request and make connections for new water and wastewater subscribers within 30 days of payment of connection fee. See MSR 16 for additional details.	AA sec. 12.2.3, AA Appendix 4 Sec. 4.6, b, MSR 16
S	13. Respond to subscribers inquiries, requests or complaints within 5 working days of receipt of the communication	AA sec. 12.2.2
A	14. Prepare separate service area maps for water and wastewater **within the first three months after the Effective Date**	DA-MSR 4.5

A	15. Prepare comprehensive occupational health and safety plan and submit to the Regulators **within 180 days of the Effective Date**; the plan shall include a hazardous materials management plan, an accidental discharge prevention plan, a waste management plan, an emergency response plan and that arrangements are made to ensure that all necessary safety equipment is available and that regular drills are undertaken to ensure staff are familiar with relevant procedures.	AA Append. 10, POP 14, POP 16
A	16. In collaboration with ASEZA, review and develop the appropriate classifications relevant to charges for service connections including but not limited to (i) meter charges, (ii) contributions to the water network cost, (iii) wastewater connection charges and (iv) waste-water service fees; this will be accomplished **within 3 months of the Effective Date,** in preparation for submission to the Regulators and the Council of Ministers for approval (see #16 below).	DA-MSR 4.7
A	17. Prepare draft - detailed MS Regulation covering service contracts, bills, customer deposit receipts & discontinuance of service notices for review by WAJ & ASEZA **within 6 months of Effective Date**	DA-MSR 5
A	18. Prepare draft revised policy on deposits within **6 months of the Effective Date** for review and approval of the Regulators	DA-MSR 7
A	19. Prepare draft policy on notices for review by the Regulators; **timeframe for implementation not specified**	DA-MSR 8
A	20. **Within the first 10 months after the Effective Date**, make a detailed economic analysis with the intention of designing an optimized system for billing and receiving payments (collections) for submission to the Regulators (see item 9 above)	DA-MSR 9
A	21. Establish a policy for disputed bills and submit to the Regulators **prior to the Effective Date**	DA-MSR 10
A	22. Establish a policy for the discontinuance and restoration of service and submit to the Regulators **prior to the Effective Date**	DA-MSR 11
A	23. Establish a policy to publicize all relevant information to the public; submit to Regulators **within 180 days after the Effective Date**	DA-MSR 12
A	24. Establish a procedure regarding temporary service and submit to the Regulators **within 6 months after the Effective Date**	DA-MSR 13
A	25. Establish a comprehensive procedure on metering (e.g. testing, relocation, bill adjustments due to meter errors, etc.), **within 6 months after the Effective Date**	DA-MSR 17
S	26. Comply with the water treatment standards of International Stand-ardization Organization **within 24 months of the Effective Date**	POP 3.6
A	27. In collaboration with ASEZA, develop a comprehensive water tariff structure including the allowed revenue formula, allowed return on investment and customer classification system; follow the guidelines provided in the DA, POP 4; prepare proposal for rate adjustment for submission to the Regulators & the Council of Ministers; **Time-frame not specified;** coordinate with item #16 above.	POP 4
A	28. Prepare comprehensive finance and accounting procedures, in coordination with the Finance and Accounting System (FAS) and in conformance with International Accounting Standards (IAS) **within the first 6 months after the Effective Date**.	POP 7
A	29. In collaboration with ASEZA and WAJ, develop criteria for accepting industrial and commercial wastewater into the wastewater collection system and monitoring such discharges **within 6 months after the Effective Date**	POP 13

4.4 Financial Projections

AWC's budget projections reflect added operational expenses due to expansion of utility plant, a growing customer base and added expenses such as those resulting from the bulk water charge. Financial projections for the 2004 – 2006 period are shown in Table 4.4 below.

Table 4.5: Projections of AWC Finances, 2004-2006[7]

Item	Fiscal Year		
	2004[8]	2005	2006
Operating Budget			
Total Operating Revenue[9]	4,258,750	8,849,334	9,186,270
Other Revenues	140,000	280,000	291,200
Total Operating Expenses	(1,392,495)	(3,068,473)	(3,369,040)
Bulk Water Charge	(1,850,000)	(3,790,625)	(3,883,547)
Operating Income Before Depreciation	1,156,255	2,279,236	2,224,883
Depreciation	(844,319)	(1,716,857)	(1,750,011)
Allowance for Doubtful Receivables (2%)	(85,175)	(176,987)	(183,725)
Net Income (Loss)	226,761	376,392	291,147
Cash Flow From Operations			
Net Income (Loss)	226,761	376,392	291,147
Add Back Depreciation	844,319	1,716,857	1,750,011
Cash Flow From Operations	1,071,080	2,093,249	2,041,158
Add Proceeds of WAJ Loan	500,000	0	0
Less Funding of Statutory Reserves (10%)[10]	(22,676)	(37,639)	(29,115)
Less Payments on Loan Principal[11]	0	0	(582,500)
Cash available for distribution & investment	1,548,404	2,055,610	1,429,543
Capital Investments			
General Capital Costs, Water & Wastewater	(350,000)	(1,300,000)	(1,350,000)
Net Cash Position[12]			
AWC Cash Surplus (Deficit)	1,198,404	755,610	79,543
Cumulative AWC Cash Surplus (Deficit)	1,198,404	1,954,014	2,033,557

[7] Principal source of information is the The AWC Year Budget, approved by the Management Committee on June 19, 2004.
[8] Assumes 6 month budget starting July 1, 2004.
[9] Not including the proceeds of a 3% ad valorem tax on all privately owned buildings in the Zone that will be remitted to AWC; previously the tax, levied by the Ministry of Finance (see par 2.3, Assignment Agreement) and remitted to WAJ.
[10] Ten percent of net income as provided in Article 70 of the Companies Law; funds to be accumulated until the fund balance becomes equal to AWC's capital and are not available for any use until such time as the company is liquidated or reformed; voluntary reserves may be established by the Management Committee to a maximum of 20% of net income; if established, voluntary reserves are available for any use as determined by the Management Committee
[11] Includes principal repayment on the JD 500,000 wording capital loan and the JD 5,320,000 contribution to the USAID financed investments made previously by WAJ; ten year repayment period (no interest is charged).
[12] Cash available for distribution in the form of dividends to shareholders or for use in financing major capital investments in an amount determined by the Management Committee

SECTION V

Strategic Policies

The AWC will pursue its mission and objectives according to strategic policies adopted by the Management Committee. These are described in various legal documents and agreements and are consistent with overall national, governorate and ASEZA policies pertaining to the provision of water and wastewater services in the sector and the institutional performance to be expected of utility organizations. AWC is a registered enterprise and is required to obtain a Water Utility Permit (WUP) from ASEZA subsequent to provisions of the Development Agreement (DA). AWC is required to meet a number of performance standards and criteria under the terms of the WUP and the DA which also affect its strategic policies. The principal policies are outlined below.

Example Policy Guidelines from the Development Agreement

- The provision of water and wastewater services represents a natural monopoly which requires accountable, participative and transparent regulatory supervision to ensure best practices
- Operate on a financially viable, self-sustaining basis on commercial principles that promote private sector participation in the provision of water and wastewater utilities; and
- Provide the ASEZ with world class, cost competitive water and wastewater services distinguished by sufficient quantity, high quality, consistently accessible to consumers so as to enhance ASEZ's socioeconomic development and competitiveness

5.1 Water Supply

5.1.1 Basic Policies For Meeting Consumer Demand

a) Take all measures necessary to eliminate suppressed demand where it exists and to meet the expected growth in demand from domestic, commercial and industrial consumers
b) Maintain close liaison with ASEZA and all other appropriate government and private groups concerning demographic trends and economic development plans and proposals
c) Introduce demand management techniques and to reduce waste and losses (e.g. leakage control, investigating irregularities, and improved metering)
d) Expansion of water distribution system to increase coverage to 100 percent of the service area population by 2008
e) Expansion of wastewater collection system and treatment capacity as needed to achieve 100% coverage of all properties served by the water system by 2008

5.1.2 Source of Water Supply

a) Introduce all measures necessary to protect the supply at its source (Disi) and during its transmission to Aqaba from losses due to leakage, theft and potential degradation or contamination
b) Develop programs to expand other sources when determined to be technically feasible and cost effective

c) Evaluate optional desalination approaches and techniques for meeting future demand for water in excess of the supply available from Disi
d) Establish, maintain and update a contingency plan designed to provide alternative sources of supply in the event of an unexpected interruption in flow from Disi
e) Projects within the Zone may generate and supply water and service wastewater needs for themselves, but cannot generate and supply water and service wastewater needs of Third Parties outside of the Project's boundaries; AWC will have the right to (a) buy water that Projects produce in excess of Project needs and (b) operate desalination facilities of its own.

5.1.3 Water Treatment

a) Develop contingency plans for treatment of water supply from Disi in the event such is required due to unanticipated degradation of the quality of Disi supply
b) Prepare plans for establishment of operational process controls for future desalination plants to assure safety and reliability, backed up by an effective quality control and quality assurance program
c) Provide assurance of adherence to Jordanian water quality standards
d) Carry out testing and laboratory analyses as prescribed in Annex 4 of the AA.

5.1.4 Distribution

a) AWC will maintain water service on a 24 hour per day, 6 days per week basis, with system pressures of 2 bars at the meter or such pressures as needed to provide sustainable flows to domestic, commercial, and industrial customers and for fire fighting (see additional guidelines in the DA, Appendix C, POP 3)
b) AWC will provide prompt service in the installation of new connections (e.g. within 30 days following receipt of customer connection fee)
c) Extensions of service to non-domestic consumers will be made by contract, with agreed terms for the compensation of the AWC to cover the cost of such extensions
d) AWC will establish and maintain a system for the mapping of all system facilities and appurtenances; this information will be made available to all other utilities (on a reciprocal basis) as well as to regulatory authorities (see Annex 4 of the AA)
e) AWC will maintain a comprehensive and systematic leakage detection and repair program
f) By the year 2008, AWC will complete the installation of break pressure facilities and service reservoirs as needed to maintain pressure balances within the specified range.
g) AWC will develop by-laws and regulations covering use of the system and relationships with customers; guidance will be provided by the provisions of Annex 4 of the AA and Annex B of the DA
h) The regulations will guarantee prompt attention to complaints and service requests by customers
i) AWC will establish and maintain customer service centers in convenient locations to assist customers in paying bills and handling of complaints and receiving requests for service [see Sec 5.3.6(f)]
j) Metered consumption will be the basis for all charges with meters to be kept in good order through a systematic meter inspection, testing, repair, and replacement program.

5.2 Wastewater

5.2.1 Collection System

a) AWC will expand the wastewater collection system in specified areas to serve all customers having water connections by 2008.
b) AWC will extend the collection system into new areas in parallel with the extension of water service into such areas
c) The frequency of sewer backups will be reduced by maintaining a comprehensive and systematic sewer inspection and cleaning program; troublesome areas requiring more frequent attention will be identified and measures taken (repairs and/or preventive maintenance) to reduce the frequency of incidents
d) AWC will provide for emergency service capability to address flooding/backups or other incidents which occur during nonworking hours
e) AWC will strive to provide prompt service in the installation of new connections (e.g. within 30 days following receipt of customer payment of connection fee)
f) Extensions of service to non-domestic customers will be made by contract, with agreed terms for the compensation of the AWC to cover the cost of such extensions
g) The AWC will establish and maintain a system for the mapping of all system facilities and appurtenances; this information will be made available to all other utilities (on a reciprocal basis) and regulatory authorities
h) Develop by-laws covering use of the system and relationships with customers.

5.2.2 Wastewater Treatment

a) Establish new facilities, as required to meet specific wastewater treatment needs of commercial or industrial customers
b) Establish operating procedures and process controls to assure safety and reliability and the required level of effluent quality; establish an effective quality control and quality assurance program
c) Develop and enforce industrial pre-treatment regulations as required

5.2.3 Disposal

a) Opportunities to expand effluent reuse will be explored and implemented where found to be feasible, practical and cost effective and permitted by law/regulation
b) Opportunities for the use of residuals from the treatment process (e.g. sludge composting for production of soil conditioning material) will be developed and implemented

5.3 Institutional

5.3.1 Marketing and Promotion

a) The AWC will establish an aggressive marketing program aimed at communicating with prospective customers concerning the benefits of its products and services and their inherent value. Marketing efforts, including those aimed at diversification, will be directed at potential customers for specific products and services such as:

i reclaimed wastewater and residuals
ii basic water and wastewater services
iii development and operation of on-site water and wastewater facilities to meet the unique requirements of commercial and industrial customers
iv provision of laboratory services to public and private sector agencies
v production and sale of bottled water or sales through vending facilities placed at convenient locations

b) AWC will work with ASEZA in the development and distribution of promotional materials that emphasize the availability of high quality water and wastewater services in ASEZ.

5.3.2 Financial – Tariff Policies

a) Every proposal for revision of the tariff schedule must be processed through the Regulators
b) Ultimate authority for setting tariffs rests with the Council of Ministers
c) Tariff policy for residential consumers will incorporate the use of progressive/stepped rates to encourage water conservation
d) Cross-subsidization between consumer groups will be continued, but rates for commercial, industrial and tourism customers will not be raised until rates charged to residential consumers have been increased to represent full cost recovery
e) AWC will provide services on commercial terms with tariffs based on the *Allowed Revenue Formula* (see inset box), and wherever practical, work towards reducing or eliminating the provision of any service on a subsidized basis
f) AWC may be required to continue providing service to some residents on a "non-collectable" basis in the areas outside of ASEZ, but has no obligation to extend free services to areas beyond those receiving it at the time of the establishment of AWC
g) Customer/household (socio-economic) surveys will be used as a means of determining customer satisfaction, willingness to pay and identify issues regarding water and wastewater services and charges
h) AWC will undertake the implementation of steps to improve operational efficiency and thus maintain the lowest possible level of operating costs consistent with best practices in O&M of water and wastewater facilities; requests for tariff increases will only be made as required to maintain the cost recovery level described in the Allowed Revenue Formula
i) Tariffs will be developed separately for water and wastewater services
j) Water and wastewater tariffs will be applied in a single bill and will be based on metered water consumption

Allowed Revenue Formula

AR = CBW+CBW+OPEX+T+DEP+R*(E+D)

Where:
AR = Allowed Revenue
CBW = Cost of Purchased Bulk Water
CDW = Cost of purchased desalinated water
OPEX = Operating Expenses (including maintenance expenses)
T = Taxes (if any)
DEP = Depreciation of assets
R = Return on Equity (initially 10%)
E = Equity
D = Debt

k) When tariff adjustments are required, AWC Management Committee will submit the request to the Regulators for consideration; their endorsements are then submitted to the Council of Ministers for determination

l) AWC will prepare detailed draft regulations concerning discontinuance and restoration of service for consideration by the Regulators. The proposed regulations will follow the outline prescribed in MSR 11, Appendix B of the Development Agreement and will cover such matters as voluntary discontinuance, discontinuance for non-payment, disputes, installment payments and other situations dealing with service discontinuance and restoration of service.

m) AWC will also prepare detailed draft regulations for consideration by the Regulators, dealing with disputed bills as outlined in MSR 10, Appendix B of the Development Agreement

n) AWC will pay WAJ bulk water fees at the rate of 250 fils per CuM or such other fee as may be imposed in the future, except that fees for water to be provided in selected villages within the Service Area, but outside of ASEZ, will be at the rate of 1 Fil per CuM.

5.3.3 Financial - Accounting Policies

a) As required by the Memorandum of Association and the Assignment Agreement, AWC will implement a commercially oriented, accrual based, cost and general accounting system appropriate for water/wastewater utilities consistent with Generally Accepted Accounting Practice (GAAP) and prudent practice in the industry; the integrated Financial Accounting System [FAS] being implemented with assistance from the WAJ HQ – is expected to meet these requirements

b) Subject to the approval of the Regulators, the Management Committee will make provision for an independent audit to be conducted by a private-sector, chartered accountant (firm); the Regulators may also have AWC's accounts and financial reports audited using internal auditors, government auditors or independent auditors

c) AWC will publish the audited annual accounts in an Annual Report with all accompanying notes and explanatory information (see par. 5.3.4 below)

d) An internal audit program will be implemented to provide ongoing analyses of the fiduciary aspects of operations and investments and to develop measures needed to address issues raised by the external auditors

e) As of the Effective Date, transferred assets will be shown on AWC's opening balance sheet at their current depreciated value, as determined by AWC's financial management staff in cooperation with WAJ's FAS project.

f) Stores and inventory to be valued on a first in, first out basis

g) Water and wastewater charges become revenue and receivable at the time of billing.

5.3.4 Financial Reporting

AWC will prepare reports as follows:

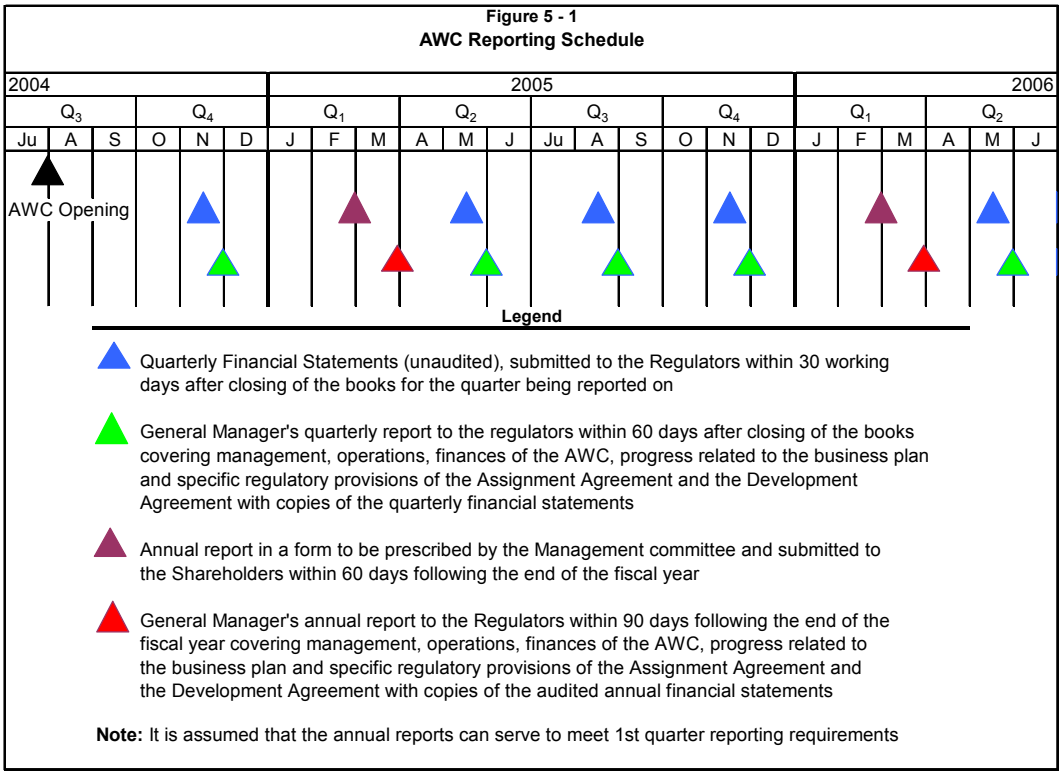
a. Fiscal Year and Annual Report -AWC shall have a fiscal year ending December 31st in each year. No later than sixty (60) days following the end of the fiscal year, AWC shall issue an annual report to the Shareholders in the form prescribed by the Management Committee.

b. Quarterly Financial and Management Reports - AWC shall prepare quarterly financial statements in accordance with IAS. The un-audited quarterly financial statement shall be submitted to the Regulators within thirty (30) business days after the closing of the books of each calendar quarter. Within sixty (60) days after the closing of the books for that quarter, the General Manager shall prepare and submit to the Regulators quarterly reports on the management, operations, and finance of AWC, including copies of the quarterly financial statements (audited if required by law)and any notes and comments by the auditors, all calculations required to be set out for purposes of the AA, *progress reports made with reference to the Business Plan*, and reports on any other matters which the General Manager may deem relevant or which may reasonably be requested by the Regulators.

c. Annual Audit and Financial Report - The management of AWC shall cause to be prepared audited annual financial statements for AWC in accordance with IAS. Within ninety (90) days after the end of each calendar year the General Manager shall prepare and submit to the Regulators an annual report on the management, operations, and finance of AWC during the preceding year, including copies of the audited financial statements with the auditors' notes and comments, all calculations required to be set out therein for purposes of this Agreement, *progress reports made with reference to the Business Plan for the preceding year*, and reports on any other matters which the General Manager may deem relevant or which may reasonably be requested by Interim Co- Regulators.

The Reporting Schedule is shown graphically in Figure 5 – 1 below.

Figure 5 - 1
AWC Reporting Schedule



5.3.5 Human Resources

a) Manpower for AWC will be recruited through transfer of WAJ Aqaba staff, from open recruitment or through contractual arrangements.
b) Recruitment will be based on qualifications and advancement based on merit; training will be provided to prepare existing staff for advancement and skill improvement required to hold existing positions and to maintain required skill levels in operational and safety measures
c) Personnel policies will be based on good and fair employee relations and competitive compensation rates
d) Employee relations will be based on open communications and mutual respect and understanding
e) Safety will be a priority both in terms of work practices, safety equipment and in the work environment.

5.3.6 Customer Relations

Several provisions of the AA and DA provide detailed guidance on the content of customer service procedures

a) AWC will assure that a written, verbal or electronic response is provided to all subscriber inquiries or complaints within five (5) days of receipt of the inquiry or complaint
b) AWC shall provide a written, verbal or electronic response to a subscriber's request for service within five (5) days of receipt of such a request and shall complete the connection within 30 days of the payment of the connection fee.
c) After receiving notification of a water main break, AWC repairs crews will respond within a period of six hours
d) Consumer surveys will be conducted to keep abreast of consumer interests and attitudes to help facilitate good customer relations
e) Consumer information campaigns will be conducted in print and electronic media, schools and community groups, business organization and economic development agencies on issues relating to water conservation, wastewater disposal and environmental matters
f) Decentralized customer service centers will be established for the convenience of customers and to facilitate relationships between the utility and its customers

SECTION VI

Measurement of Operational and Institutional Performance

Under provisions in Appendix 4, Par. 4.2.1 of the AA, AWC is required to implement a computer based Management Information System (MIS). AWC must acquire commercially available computer software and the associated hardware needed to implement these systems within one year of the Effective Date. It must then complete implementation of the system and associated staff training by the end of the second year following the Effective Date.

The monitoring and reporting procedures described in the business plan will be integrated into the prescribed MIS system and are therefore intended to serve as interim procedures that can be used to meet reporting requirements of the Management Committee and Regulators until such time as the officially required MIS becomes operational.

Design of the interim monitoring system involves (i) selecting performance indicators to be included in the reports, (ii) identifying input data needed to produce the indicators and (iii) designing data formats and reporting systems. The Management Committee and senior executives of AWC will review periodic reports of progress against plan to identify problem areas and implement solutions as needed to maintain the programmed rate of improvements. Such reports will also be provided to the Regulators along with any additional information that may be required.

6.1 Status of the Data Base

Initially, the data base may be found lacking in terms of accuracy, reliability and/or coverage of all needed information. Over time howeve, AWC will develop the capacity to systematically and accurately collect all the information needed to measure its performance against regulatory requirements and various objectives as set forth in the Business Plan. Data management is a key adjunct to the monitoring program and will be addressed by the Management Committee and executive management soon after the Company is activated.

Implementation of the institutional development program including enhancements to the revenue systems, strengthened operating and maintenance procedures and improved accounting and financial reporting systems will contribute to the generation of relevant and reliable information. Physical improvements in such matters as bulk metering, customer metering and laboratory facilities (if services are not obtained through outsourcing to WAJ's central laboratory facilities) will also contribute to the development of the Company's data base by providing accurate measurement of quantitative and qualitative aspects of service delivery.

6.2 Management Information System

As noted above, AWC will implement, maintain and update a Management Information System (MIS). An evaluation will be made of internationally available computerized MIS and the system most suitable for AWC will be selected within one year of the Execution Date. Within two years following the Effective Date, AWC will make the system fully functional by (i) procuring and installing all hardware and software, (ii) entering all necessary

data into the system and (iii) training selected staff in the operation and use of the MIS. The MIS will be comprised of four main sub-systems:

- Physical System – system to track and manage the entire physical network for both water and wastewater systems
- Computerized Maintenance Management System (CMMS) – to include a computerized in Inventory Management System for monitoring plant and equipment and a Preventive Maintenance Program
- Information System – for billing, collections and customer services
- Digitized Mapping – complete mapping of the water supply and distribution system and wastewater collection and treatment system

When fully implemented, this system will provide the information needed to prepare the required reports to the Regulators. It will also allow management to assess progress against plan in key areas and identify corrective actions to be taken to assure attainment of stated objectives (see paragraph 6.5 regarding establishment of monitoring activities.

6.3 Baseline Service Profiles

Some data used in the initial MIS reports will of necessity consist of estimates or approximations for some data elements needed to describe baseline operational performance. Implementation of the MIS and the measures needed to improve the quality and accuracy of its data sources will allow replacement of the estimated data with more accurate information during the early years of the planning period.

A list of baseline performance indicators on utility service levels, with commentary, is presented in Annex I. Service profiles and performance levels are presented and discussed separately for (i) water supply, (ii) wastewater and (iii) institutional performance. Service level parameters in the aggregate for the AWC will be used in reports prepared for the Management Committee and the Regulators describing the AWC's overall operational and institutional performance. The information presented describes *hypothetical circumstances and employs hypothetical data; it is for illustration only and is not intended to represent the actual situation in WAJ or that expected in AWC.*

6.4 Performance Standards

Minimum standards of performance for AWC are laid out in both the AA and the DA, covering basic technical and financial functions as well as relationships with consumers. Key provisions are outlined as follows:

6.4.1 Technical Standards Regulated by WAJ – Minimums to meet requirements of the AA[13] (see inset box below)

a. AWC shall meet or exceed all applicable Jordanian drinking water quality standards and any future amendments thereto for:
   - Water Supply, Distribution, and Treatment
   - Wastewater Collection, Transmission, and Treatment and Reuse
   - Uses of Sludge

[13] Waivers allowed due to a Force Majeure event per AA, Article 17; note that in the event of conflicts with MSR regulations in Appendix B o f the DA, the MSR provisions prevail with respect to item e. in the inset box below.

- Constancy of Water Supply

b. Provide potable water meeting all quality standards a minimum of twenty-four (24) hours per day, six (6) days per week.
c. Provide potable water at a pressure of 2 Bars a minimum of twenty-four (24) hours per day, six (6) days per week.
d. AWC shall provide for collection, pumping, treatment, and reuse of all wastewater discharged to the central wastewater-collection system within the Service Area at a minimum of twenty-four (24) hours per day, seven (7) days per week.

WAJ Technical Standards, From Appendix 7, AA

The following WAJ Laws, Regulations and Standards shall be applicable and govern AWC's performance:

a. Water Authority Law No18 of 1988 and its Amendments
b. Under- Ground Water Control by-Law No 85 of 2002 and its amendments
c. Wastewater Bylaw No. 66 of 1994
d. Wastewater Bylaw Amendment
e. Instructions for Subscribing for drinking water by law no 67 of 1994 bases for Estimating Estate value for the purpose of charging fees for connection to the sewerage network
f. Instructions for the Commercial and Industrial Wastewater Disposal through the Sewerage Project Network (Issued According to the Water Authority Law No. 18, 1988 And to Wastewater Bylaw No. 66, 1994).
g. The Industrial Wastewater (Standard Jordanian Standard, No.202 of 1991).
h. The Reclaimed Domestic Wastewater Standard (Jordanian Standard, No.893 of 2002
i. The Sewage Sludge Use in Agriculture (Jordanian Standard, Nol145 of 1996)
j. The Natural Mineral Water Standard (Jordanian Standard, No.200 of 2001)
k. The drinking water Standard Specification (Jordanian Standard, No.286 of 2001),
l. The Bottled Drinking Water Standard (Jordanian Standard, No.1214 of 2001, First Edition).

6.4.2 ASEZA Regulatory Provisions – Provisions of the ASEZ Law apply generally throughout the Zone. Issues not clearly addressed are addressed by the relevant laws of the Kingdom. Regulations specifically applicable to AWC are as follows:

- Financial accounts – Regulation No. 23/2001 for organizing accounts and financial statements of registered enterprises in ASEZ
- Real estate owned by AWC – Building and zoning regulations of ASEZA subject to Regulation 7 of 2001 and article 10 (b) of the ASEZ Law
- Environmental assessment – ASEZA Regulation No. 21/2001 for the protection of the environment in ASEZ (also Article 52 of the ASEZ Law, see paragraph 6.4.3 below)
- Extraction of groundwater – ASEZA (in cooperation with WAJ), Regulation No. 11/2001, Appendix 1/2001; Operation Permit and Public Safety and Health Certificate required
- Drilling for water supplies and wastewater plants – ASEZA environmental impact assessment subject to Regulation No. 21/2001

6.4.3 Regulations of the Ministries of Health and Environment – The Ministry of Health has jurisdiction over water resources and networks to ensure that they are not polluted. The Ministry may also monitor water treatment processes, distribution systems and storage to ensure compliance with Health rules and regulations. Law No. 54 of 2002 is applicable.

Under the provisions of Law No. 1 of 2003, the Ministry of Environment has a general mandate for protection of the environment. Article 11 of that law provides that the Council of Ministers shall issue regulations related to the protection of water resources (regulations not yet issued). However the law provides further that the Council of Ministers may assign the Ministry's powers and responsibilities to any Ministry or agency. ASEZA has gained such authority over environmental matters as provided in Article 52 of the ASEZ Law.

6.4.4. Financial Standards - The following standards for financial management establish minimum requirements for the satisfactory rendering of Services under the Agreement. AWC will:

a. Be effective and efficient in acquiring needed resources and in meeting its goals and objectives
b. Meet or exceed all applicable standards for financial accounting, reporting and auditing as prescribed by the Jordanian Commercial Code and other relevant entities.
c. Prepare in a timely manner, and consistent with other AWC planning documents, annual budgets for its operations, cash flow, and investments; monitor actual vs. budgeted revenues and expenditures and take corrective actions as necessary
d. AWC will use all available data to improve decision making; it will develop specific and relevant indicators for use by regulators, AWC Management Committee and executive management to monitor the performance of the company through analysis of periodic reports
e. Financing Activities. Using the financial accounting system, AWC will anticipate, and provide in a timely manner, any working capital or long term financial needs for capital investment, and use appropriate means to secure any such external financing at competitive costs.

6.5 Monitoring for Regulatory Compliance and Progress Toward Achievement of Performance Goals/Targets

Monitoring actual results against performance targets is a key element in the business planning process. A series of 17 key indicators covering service levels for water and wastewater and operational performance for the AWC as a whole has been developed for inclusion in AWC's Business Plan.

Broad indicators are supported by numerous subsidiary data elements, which can also be classified as "indicators", although they typically have a much more narrow focus. The 17 key indicators are listed in Table 6.1 below and presented graphically in Annex 2. These are the indicators that will be presented to the MC and the Regulators in AWC's initial reports for their use in monitoring progress against business plan targets and for determining compliance with regulatory provisions.

Table 6.1 - Summary Listing of 17 Key Physical and Operational Performance Indicators

Physical Indicators		Institutional Performance
Water Supply	**Wastewater**	**Overall AWC**
Population Served vs Total Population	Wastewater Service in Areas Also Served by Water System	Staffing Levels per 1,000 Connections
Water Production, Consumption and Leakage	Quantity of Wastewater Treated and Reused	Recurrent Costs
Water Service Reliability and Response Time Performance	System Service Interruption and Treatment Plant Bypasses	Recovery of Recurrent Costs
Compliance With Water Quality Standards	Compliance With Discharge Standards, BOD & TSS	Tariffs & Projected Tariffs to Meet Allowed Revenue
New Connections and Connection Costs	New Connections and Connection Costs	Accounts Receivable and Collection Efficiency
Pressure Levels At Service Connections Not Meeting Standards		Response Time – Subscriber Inquires/Complaints

Example report formats covering the 17 key indicators are presented Annex 2. The data used in the example graphics and text materials is hypothetical and not intended to represent the prior situation in WAJ Aqaba or the conditions existing under AWC jurisdiction. The graphics portray a situation wherein the reports contain actual data through the year 2006 to illustrate how actual results can be compared with projections/targets so that assessments can be made concerning progress vs. plan and whether or not action is required to improve performance.

6.6 Data Generation and Management

An expanded list of indicator/data elements is shown in Table 6.2, following the page. This list includes some narrowly defined indicators which are of potential interest to decision makers. In consultation with the MC and the Regulators, AWC will identify the specific items in the list to be included in the quarterly and annual reports. As discussed in subsection 6.3, during the initial period of AWC operations, at least some of the data elements required for the preparation of the baseline indicators will not be readily available. During an initial period therefore, some data inputs will have to be prepared on a provisional (estimated) basis or generated based on sample surveys or field studies. This provisional data will be replaced by actual data as progress in the AWC's overall institutional development programs allows the generation of the required data more accurately and on a timely basis.

The AWC will prepare financial statements each year which portray, in financial terms, the status of the AWC's assets and liabilities and the results of the fiscal year in terms of income and expenditures. Audit reports covering these reports will also be adopted and included by reference in the quarterly and annual reports. After gaining the required experience and preparing its initial financial reports, AWC will prepare financial projections to be included with its regular periodic financial reports.

Table 6.2
Table of Indicators/Data Elements

Item No.	Description
	PHYSICAL INDICATORS/DATA ELEMENTS FOR WATER SUPPLY
1	Service Area Population
2	Population Served - Water Supply
3	No. of Persons Per Residential Connection
4	No. of Resid. & Small Commercial Connections
5	% Service Area Population Served by Water
6	Domestic Water Consumption - M^3 000/Year
7	Domestic Consumption Rate, liters/capita/day
8	Total Water Consumption – M^3 000/Year
9	Overall Consumption Rate, liters/connection/day
10	Total No. of Connections, start of year
11	Total No. of Connections, year end
12	Average No. of Connections During year
13	No. of New Connections During Year
14	Average Cost/New Connection – JD
15	Leakage, % of Production (also Non-revenue Water)
16	Total Water Production - M^3 000/Year
17	Water Sales - M^3 000/Year
18	Water Main Breaks/Bursts - No.
19	Main Bursts Response Time Failures
20	Average No. of Connections Affected/Main Break
21	Average Hours of Service Interruption/Main Break
22	No. of Water Samples Taken & Tested
23	No. of Samples Failing to Meet Standards
24	No. of New Connections
25	Average Cost Per New Connection
26	Events, Pressure at Service Connections Not Within Allowed Range
27	Events, Pressure Variance Exceeds 50% of Average in Normal Operations
	PHYSICAL INDICATORS/DATA ELEMENTS FOR WASTEWATER
28	Population Served – Wastewater
29	% Water Customers Served by Wastewater
30	No. Residential/Small Commercial Connections Served - Wastewater
31	Wastewater Treated – M^3 000
32	Wastewater Reused – M^3 000
33	% Treated Wastewater Reused
34	No. of Sewage Flooding/Backup Events
35	Frequency of WWTP Bypass Events
36	Volume of Wastewater Bypassed - M^3 000
37	No. of Sewer Connections - Start of Year
38	No. of Sewer Connections - End of Year
39	Average No. of Connections During Year
40	No. of New Connections During Year

41 Average Cost/New Connection – JD
42 No.Days Effluent Exceeds Discharge Stds. - BOD
43 No.Days Effluent Exceeds Discharge Stds. - TSS

PERFORMANCE INDICATORS/DATA ELEMENTS FOR THE AUTHORITY

44 Total Staff, Water - (Admin. Staff Allocated)
45 Staff/1,000 Connections, Water
46 Tot.Staff, Wastewater - (Admin. Staff Allocated)
47 Staff/1,000 Connections, Wastewater
48 Water Production Costs, JD/M^3
49 Total Recurrent Costs, Water – JD 000
50 Total Recurrent Costs, Water, JD/M^3
51 Wastewater Treatment Costs, JD/M^3
52 Total Recurrent Costs, Wastewater – JD 000
53 Total Recurrent Costs, Wastewater, JD/M^3
54 Average Tariffs, Water, Fils/ M^3
55 Average Tariffs, Wastewater, Fils/ M^3
56 Grand Total Recurrent Costs – JD 000
57 Operating Revenue, Water – JD 000
58 Operating Revenue, Water – JD/M^3
59 Operating Revenue, Wastewater – JD 000
60 Operating Revenue, Wastewater – JD/M^3
61 Total Operating Revenue – JD 000
62 Accounts Receivable, Current – JD 000
63 Accounts Receivable, Overdue – JD 000
64 Accounts Receivable, Total – JD 000
65 Overdue Accounts as a % of Total Receivables
66 No. of Days Revenue in Receivables
67 Response Time Failures, New Connection Requests
68 Response Time Failures, Subscriber Inquiries, Requests or Complaints
69 Inventory Value, Water – JD 000
70 Inventory Value, Wastewater – JD 000
71 Value of Inventory - Months of Recurrent Expenses
72 Water Meters in Service, No.
73 Water Meters Removed, Serviced & Calibrated, No.
74 Water Meters Retired/Replaced, No.
75 New Meters Purchased and Installed, No.

ANNEX I

Baseline Service Profiles and Performance Levels

ANNEX I – Baseline Service Profiles and Performance Levels

Note: Data is hypothetical and is not intended to represent the actual situation in Aqaba

Water Services	
Service Measurement	**Comments (Data Sources, etc.)**
Population served in comparison with total population in the authorized service area. expressed both in terms of gross numbers and percentages. **Example:** Population served in 2004 is estimated to be 67,000, served through 17,728 domestic and small commercial connections; 552 connections serve large users and government organizations; thus it is estimated that 93 percent of the population is served with water from WAJ Aqaba.	The ***authorized service area*** for AWC will include the jurisdiction under ASEZ plus the rural areas outside of ASEZ in Aqaba Governorate. AWC will have the necessary information on the number of connections, thus can estimate ***population served*** by multiplying average household size by the number of connections. The ***population within the area*** may be more difficult to obtain and will likely have to be estimated from census, administrative, voter registration or other such data.
Trend in Expansion of Water Supply in the Authorized service area. basically, the growth rate of population served in comparison with overall rate of population growth in authorized service area. **Example**: Over the planning period, the population served is expanding at the rate of 3.5 percent per year in comparison with the service area population growth rate of 3.0 percent per year, thus reducing the proportion of population not receiving public water supply service.	In the example, during the past five years, x,xxx ***new connections*** have been made which are estimated to serve an additional population of x,xxx. Data source as described above. ***Population growth rate*** based on demographic trends including natural growth and in/out migration. Sources are as indicated above for determining the population of the authorized service area.
Water Production, Consumption and Trends in terms of individual consumption, average daily production and annual production. **Example:** During the second quarter of 2004, average daily water production was approximately 40,300M^3 with total annual production estimated at 14,507,134 M^3; losses from water used in the production process, theft and leakage were 28 percent; a portion of the amount consumed was not registered due to inaccuracy of meters and was therefore unbilled; domestic consumption represented only 27 percent of the total, government/institutional use was 17 percent and large users (primarily industrial and large commercial) accounted for the remaining 56 percent. Domestic consumption averaged an estimated 135 liters per capita per day. It is estimated that demand would soon exceed availability because the supply delivered from Disi is nearing the maximum sustainable flow. However it has been determined that several million cubic meters per year currently used by a fertilizer company can be made available for general use. The fertilizer company has agreed to accept reclaimed wastewater in lieu of the potable supply, thus delaying the need to provide supplemental water supplies through desalination until the 2011 or 2012.	Water ***"production"*** is not entirely accurate as a term for describing how Aqaba obtain its supply of water. Water is pumped from wells operated by WAJ central management at Disi and transmitted to Aqaba by gravity with no treatment other than chlorination. Disi has an estimated sustainable yield of 17.5 million cubic meters per year and can exceed that level for short periods of time. ***Bulk metering*** is an essential element in the development of these performance indicators. In the absence of accurate bulk metering, production (e.g. the quantity being delivered to Aqaba) can only be estimated based on such factors as well capacities and rated pump capacities of water pumps. A ***customer metering*** program will be implemented to reduce the amount of under registration. A representative sample of customer existing meters should be tested to provide the basis for the ***estimated current level of under-registration***. Estimated per ***capita consumption (lpcd)*** is then developed using measured (or estimated) consumption and population served data. ***Suppressed demand*** must be considered in terms of production deficiencies as they occur (i) during a typical 24 hour period, (ii) during peak seasonal demand periods and (iii) on the basis of total annual requirements. Although supply from Disi currently meets average annual requirements, it is possible that demand is not met for peak hourly, daily or even seasonal periods.

Service Measurement	Comments (Data Sources, etc.)
Service Reliability in terms of continuity (or lack thereof) of service. This is measured in terms of (i) average system pressure at the customer's property line, (ii) frequency of pressure drops below stated levels of pressure and (iii) the frequency and duration of service interruptions. In Aqaba, the reverse situation may occur wherein pressures reach excessively high levels, thus increasing system leakage and causing plumbing breakdowns on customer premises. **Example**: During the year, average system pressures were reduced to unacceptable levels due to the overall inability of the system to meet demand, especially during peak demand periods. During the peak demand season, negative system pressure was experienced on fifteen separate occasions in the most remote sections of the network and in other areas at high elevations or where network weaknesses exist (various causes from lack of "looping", inadequate pipe sizes, reduction in pipe capacity due to tuberculation (mineral build-up) or insufficient on-line system storage capacity.	***System pressures*** must be measured; there is no substitute for ***instrumentation*** to provide accurate and continuing data on system pressures through a ***telemetering system***. Pressure measurements will also be taken to provide inputs to network analyses. Another source of information on pressures, especially in the case of insufficient pressure, are customers in the areas experiencing the difficulty (from either lack of pressure or from pressures that are too high) The AWC will develop its network improvement program based on (among other things) system pressure data developed from all available sources. Analysis of system pressures in a system that has experienced chronic problems in prior years must consider the fact that customers have undertaken measures on their own properties to mitigate the situation by installing storage tanks and pumps taking suction from the system.
Water Quality and Potability measures including as a minimum compliance with Jordanian standards. The data should be reported in terms of (i) average quality of water delivered from Disi (ii) number (and percentage) of distribution system samples failing to meet quality/potability standards and (iii) significant variations in quality (within standards). AWC should also strive, when practical, to maintain quality standards needed by commercial and industrial customers. **Example**: Water received in the transmission main from Disi met water quality standards at all times during the year. Except in those portions of the network experiencing periodic negative pressure, samples taken were in compliance with quality and potability standards. This is demonstrated by xxx samples meeting standards, representing about 99.5 percent of the area served. Sections of the network that periodically experience negative pressures, have a corresponding number of samples failing to meet the applicable standards. This is represented by the fact that xxx samples failed to meet standards during the year in those areas, representing about 0.5 percent of the total area served; time periods during which samples were in noncompliance ranged from three days to six weeks, and were always associated with periods of high system stress (negative pressures, etc.) Ironically, in some instances, excessively high pressures were responsible for major leaks, that in turn resulted in low pressures and pipeline contamination.	Water quality and potability are dependent upon the (i) quality of the raw water supply, (ii) adequacy of the transmission pipeline design, (iii) adequacy of pipeline repair and disinfection practices and (iv) competence of operational personnel and supervisors. Monitoring procedures involve design of a ***sampling plan and schedule***, training of inspectors in the proper ***procedures for collection and handling of samples*** and the implementation of ***laboratory procedures meeting the highest technical standards.*** The AWC will establish a sampling program designed to identify potential problems as well to assess overall quality throughout the various portions of the system. Areas demonstrating a significant number of samples in noncompliance (a few samples exhibiting minor problems are generally acceptable) should be targeted for public service announcements advising customers of the problem and recommended measures to be taken to avoid health problems (e.g. boiling water for drinking, etc.). Analysis of water quality problem areas also point toward the need for re-examination and revision of standard operating procedures and the implementation of targeted training programs for involved staff.

Wastewater Services	
Service Measurement	**Comments (Data Sources, etc.)**
Wastewater Services as a Percent of Water Services, to provide an indication of relative coverage. **Example:** As of June 2004 wastewater services had been extended to 13,036 customers, representing about 71 percent coverage of the properties receiving water service; wastewater service is available primarily in the Aqaba Town area. AWC board members and senior management should consider their options and establish an objective and target concerning the desired level of wastewater coverage for each planning period (e.g. should extension of water service into a new neighborhoods always be accompanied by a parallel extension of the wastewater system into those areas).	In the process of drafting AWC's mission statement, it should seriously consider a policy of requiring the extension of wastewater service to all customers receiving new water services. This is to prevent health and environmental problems that can be caused by the increase in wastewater flow that occurs after piped water supply is provided. AWC policy makers should also evaluate the pros and cons of establishing a policy aimed at having wastewater service coverage "catch-up" with water coverage. The data used in computing the indicator is generally available from customer account data, and is developed in a manner consistent with the data used in computing water service area coverage.
Wastewater Quality in terms of BOD, COD, suspended solids of effluent (and other parameters if appropriate) **Example**: Effluent quality was consistently within the required BOD standard of 20 mg/l throughout most of the year. Periodic difficulties were experienced due to unexpected "spikes" in BOD (or other containant levels) of incoming wastewater which interfered with the treatment processes.	Wastewater effluent quality is an important measure of the ***adequacy of treatment processes, facilities and operating personnel***. It is also affected by the strength and composition of wastes received at the treatment plant. As in the case of water quality assessment, monitoring (sampling and testing) must be approached on a systematic basis, performed by competent staff employing the highest professional and technical standards.
Volume of Wastewater Treated in terms of both average daily flow and total annual flow. **Example**: Average daily wastewater flow in the year ended June 30, 2002 was xxx M^3 per day with total flow for the year at xx,xxx M^3. Average daily flows reached 110 percent of design capacity and were 5 percent higher than in the previous year.	Flow meters are used to provide this data. Assuredly overloading of the existing wastewater treatment facility in Aqaba led to the development of the new treatment facility, now nearing completion.
Frequency of Treatment Plant Bypassing Episodes, in terms of the number of occasions when wastewater flows, in whole or in part, must be diverted from the treatment plant and discharged directly into surface waters. **Example**: During the quarter ending June 2004, wastewater flows were diverted from the treatment plant on xx separate occasions. One such episode was caused by extensive rainfall from a "100 year storm" event. The bypassed flow from this episode was therefore highly diluted. The remaining two episodes were of brief duration (less than 8 hours) and were result of construction work in progress at the plant, which will result in an expansion of plant capacity during 2004. Total flow quantities bypassed during the year were estimated at xxx M^3 which is less than 0.1 percent of total flow for the year.	It is not uncommon for treatment plants to be bypassed during periods of high rainfall, particularly so if the collection system carries combined storm and sanitary wastewater flows. Also, construction or repair work and mechanical breakdowns can produce the need for temporary diversion of wastewater flows. The AWC's approach to dealing with such circumstances in part, should be to implement infrastructure improvements, such as temporary impounding/storage reservoirs to hold bypassed flows. It should also develop operational contingency plans designed to minimize the duration and adverse impacts of such events.

Service Measurement	Comments (Data Sources, etc.)
Incidence of Flooding/Sewage Backups in the collection system. This is basically a count of sewage backups and flooding events that have occurred during the year. **Example**: Periodic flooding occurred in several locations during the year, due to deteriorating facilities and mechanical breakdowns at pumping stations which serve those areas. The AWC responded promptly to such emergencies and restored operations with minimum delay (e.g. average response time less than 3 hours). The AWC also received xxx complaints during the year concerning sewage backups due to obstructions in the collection system. Complaint frequency is 6 percent less than in the prior year, due primarily the AWC's systematic cleaning program and preventive maintenance program in areas that have historically been troublesome.	These data are indicative of the ***adequacy of the collection system, maintenance programs and the availability and readiness of emergency repair response teams,*** all of which are designed to assure continuity of wastewater flows from all areas of the system to the treatment plant. A key element in reducing this type of incident is existence of a systematic sewer cleaning and inspection program, with follow-up maintenance and repair programs. Portions of the system experiencing chronic problems are identified for infrastructure rehabilitation or improvement projects in the AWC's capital improvement program.
Performance Measures Covering Reuse and Recycling such as the cubic meters of effluent or tons of sludge that have been utilized for productive purposes. **Example**: During the year, xxx tons of sludge were composted and sold to xxxx (the municipality, farmers, golf course managers, etc.) for use as a soil conditioner. In addition, xxx M3 of effluent were diverted for use as irrigation water for a xx hectare orchard being developed at the treatment plant site.	Reuse/recycling of wastewater effluent and treatment residuals is an element of the mission statement. The AWC will actively pursue further development of such activities on a continuing basis. Recovered materials should be considered as resources, that incur costs for processing and distribution to recipients. AWC should give serious consideration to the implementation of tariffs for the recovery of costs in the processing of these materials.

Performance Measures for AWC	
Performance Measurement	**Comments (Data Sources, etc.)**
Staffing Levels, in terms the number of employees per 1,000 connections, separately for water supply and wastewater. **Example**: As of July 2004, there were about 255 employees assigned to WAJ Aqaba. Information on the breakdown between water and wastewater is not available but the ratio of employees to 1,000 total connections (water plus wastewater) is about 8.1. This is only slightly above accepted standards for developing countries which is in the range of 4 to 6 employees per 1,000 connections (it must be kept in mind however, that WAJ Aqaba is supported by substantial numbers of staff at WAJ headquarters and at the Disi wellfield facilities that are not included in the 255 staffing complement). AWC should monitor this indicator to identify any upward trends that could indicate reduced staff productivity.	This is a simple but effective measure of the ***effectiveness of the use of human resources*** in providing the utility services. Data should be developed to enable the production of the indicator separately for water and wastewater. In this instance, staff involved in both water and wastewater services would be prorated; examples of prorated staff are top management, administrative personnel, support staff and those involved in revenue and finance programs such as meter reading, billing, collecting and accounting.
Percentage of Recurrent Costs Recovered Through Tariffs including operating, maintenance, administrative, management, revenue generation, finance, support and overhead costs and working capital requirements. **Example**: Operating revenue from tariffs for fiscal year 2004 may have covered as much as – say 165 percent of recurrent costs for water and operating revenue from tariffs for wastewater service may have only covered 85 percent of recurrent costs for wastewater services. In aggregate however, overall cost recovery remained positive and could have been, say 140 percent of all of the AWC's recurrent costs.	The AWC's ***operational revenue*** is derived from its ***service charges levied for the services provided***. This is the numerator in the formula for determining the level of recovery of recurrent costs. ***Other income,*** excluded from the computation, is derived from such other sources such as interest earnings, permits, fines and penalties. Further, ***contributions in aid of construction (e.g. for new connections)*** are also received, but are not included in the definition of operational revenue. These funds are received from developers or property owners for their share of the costs of service extensions and from new customers for the cost of connections.
Accounts Receivable, Collection Efficiency and Number of Accounts Disconnected, indicating the cumulative balance of amounts due AWC, the time required to collect amounts due and the level of "bad debts" incurred by the AWC. **Example**: Accounts receivable at the end of the year amounted to xx,xxx JD, which was the equivalent of about 90 days of revenue. Collection efficiency during the year ending December 2004, increased to 94 percent, up 3 percent from the 91 percent figure reported for the prior year. The figure represents collections from all domestic, commercial and industrial accounts. Collection performance from government agencies and state enterprises can be reported separately as it is often significantly lower, possibly as low as 50 to 60 percent	AWC management may decide to consider ***all bills due and payable as of the date of issuance***, with amounts billed becoming "***accounts receivable***" at that time. Customers may be allowed 30 days to make payments without penalty. After 30 days, a penalty of 5 percent per month could be assessed. After 90 days, unpaid accounts could be considered to be "***in arrears***" and are subject to disconnection. ***Collection efficiency*** measures the proportion of bills issued during a 12 month period that are paid within 90 days, on a continuous rolling average basis. The AWC may undertake various measures designed to reduce the overall level of receivables and improve collection efficiency, including the establishment of conveniently located customer service centers and more efficient billing, collection and follow-up procedures.

Performance Measurement	Comments (Data Sources, etc.)
Unit Costs of Operations for both water and wastewater, in terms of water production (received from Disi) or treatment of wastewater and sales volumes. **Example**: Unit costs of operations in the year ending June 30, 1997 were as follows: · 0.XXX JD/M^3 of water received · 0.XXX JD/M^3 of water sold · 0.XXX JD/M^3 of wastewater treated · 0.XXX JD/KM of sewer cleaned · 0.XXX JD/ton for sludge disposal · 0.XXX JD/ M^3 electricity cost for pumping	Only actual O&M costs (no administrative, support or overhead costs are included in the computations comparing costs to water received (or wastewater treatment). All recurrent costs are included in the computations which compare costs to the volume of water sold to permit comparison of total recurrent costs with tariffs. Wastewater flow will generally be 15 percent to 20 percent less than quantity of water sold from which the wastewater is generated, but may also be affected by infiltration and inflow which would tend to reduce the difference between the two figures. Care must be exercised to have assurance that proper comparisons are being made.
Major Expense Categories, focusing on expense items of such magnitude that they should be tracked separately. Similarly, tracking of ***Large User Accounts*** to assure that the meter is registering properly, check for leakage, etc. **Example**: Due to the nature of the AWC's wastewater system, electricity consumption is (may be) a major expenses category, accounting for 0.xxx JD/M^3 of the total unit cost for wastewater treatment. In addition, AWC's wastewater collection system requires a labor intensive approach to maintenance. Personnel costs are therefore another major category of expense to be closely monitored. AWC should be tracking these costs and pursuing various measures aimed at decreasing expenditures in these categories. Likewise, AWC should closely monitor large user accounts to provide assurance that consumption is being properly recorded.	AWC management will focus much of its attention on ***high expense categories and high consumption users***, in an effort to improve operational performance and optimization of revenue from the major consumers. Technical and economic analyses will be made of various options that may be available to improve operating efficiencies in these major expense categories. Opportunities will be explored for cost effective rehabilitation or renewal projects that may result in improved operating efficiencies, such as improvement of power factors at pumping facilities or testing of pumps to assure that impeller design is appropriate for the operating pressures that are working against. Frequent visits to large users and assessment of large user billings are also essential to assure that meter accuracy is maintained, leakage is detected and other relevant issues are identified at the earliest possible time.
Percentage of Non Revenue Water (e.g. Percent of Total Quantity Received Which is Not Billed) including in Aqaba leakage, unauthorized water use and under-registration of customer meters. **Example**: During the fiscal year ending in December 2004, non-revenue water reached 28 percent of total production. For illustration, this could be comprised of 1 percent leakage in transmission, 2 percent unauthorized use, 2 percent for municipal tanker distribution, 13 percent leakage in the distribution system, 5 percent under registration of customer meters and 3 percent for water provided free of charge in villages.	The AWC should carefully account for all water supplied to the system and its usage and ***develop programs to minimize the quantity of water that for various reasons remains unbilled***. The reconciliation process involves the use of measured flows, estimates and imputed data based on sampling and testing results. It is important to recognize the nuances of the various definitions. ***Non-Revenue Water*** for example, includes all water made available that is not billed. ***Water losses*** include amounts actually lost through leakage and unauthorized use, but do not include unbilled water for villages or meter under registration. (Note that ***amounts billed but uncollected (bad debts)*** are an entirely different issue.)

ANNEX II

Performance Indicator Reporting Formats

Annex 2.1

Physical Indicators for Water Supply Services

(Data for Illustration Only)

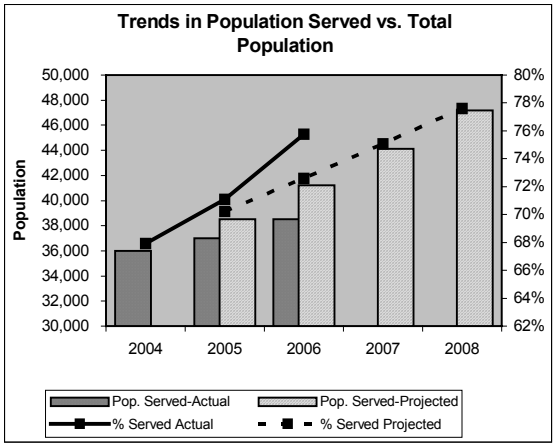


Figure 2.1.1 - Trends in Population Served

The population of the authorized service area is growing at the rate of 3.5% per year. Expansion of water services is projected to continue at an average annual rate of 7% per year. Thus it is anticipated that the proportion of the population in the authorized service area served by water supply in 2008 will increase to about 86%, a substantial increase from the level of coverage of 68% in 2004. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed

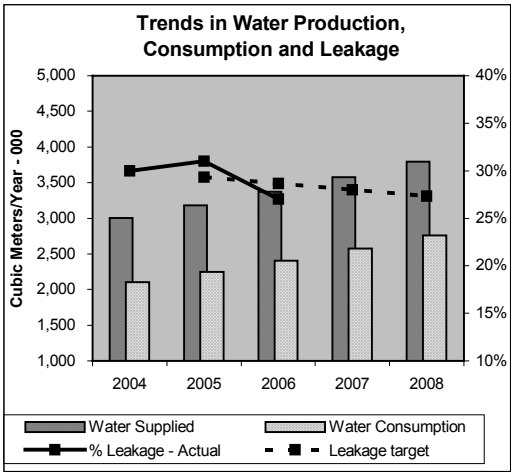


Figure 2.1.2 Trends in Water Supplied to AWC's System, Consumption and Leakage

Projected trends in water supplied to the system and consumption are illustrated in the graph. These are based on AWC's targets for increasing supplies sufficiently to eliminate suppressed demand, and to increase average consumption per connection to 425 liters per capita per day (LPCD) by the year 2008. (**Note:** actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

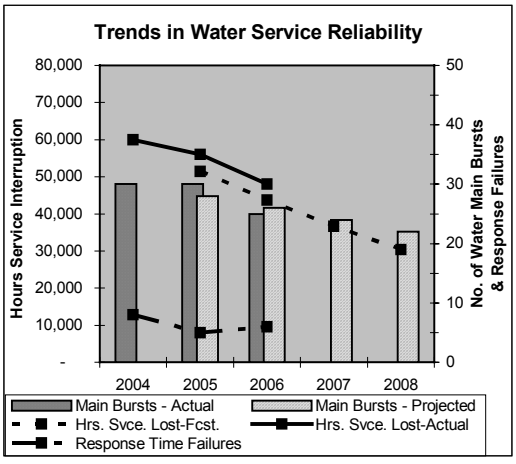


Figure 2.1.3 Trends in Water Service Reliability

Interruptions in service at various locations in the system due to main bursts (breaks or leaks) presently occur 2.5 times each month, affecting an average of 250 properties. The AWC is undertaking various programs designed to reduce service interruptions through leak detection and main replacement/rehabilitation. It is also implementing programs designed to reduce the impact of service interruptions through network strengthening, valve maintenance and installation and improved maintenance management techniques. Compliance with response time requirements was maintained with only a few exceptions. Responsiveness will continue to be a priority until 100% compliance is achieved. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

Annex 2.1(2)

Physical Indicators for Water Supply Services (Continued)

(Data for Illustration Only)

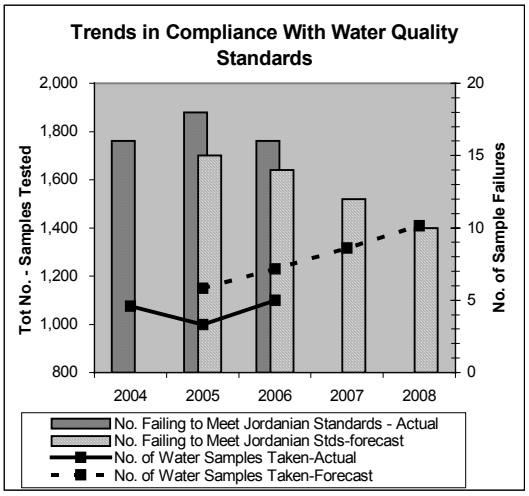


Figure 2.1.4 - Trends in Water Quality

The AWC conducts a water quality assurance program, collecting samples from various points throughout the distribution system and testing them for compliance with applicable Jordanian and international water quality standards. AWC's target for the year 2008 is to achieve a sample failure rate of less than one-half of one percent. This will be accomplished through such programs as system rehabilitation/leakage reduction and improvement in pipe disinfection procedures associated with pipe repair/replacement projects. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

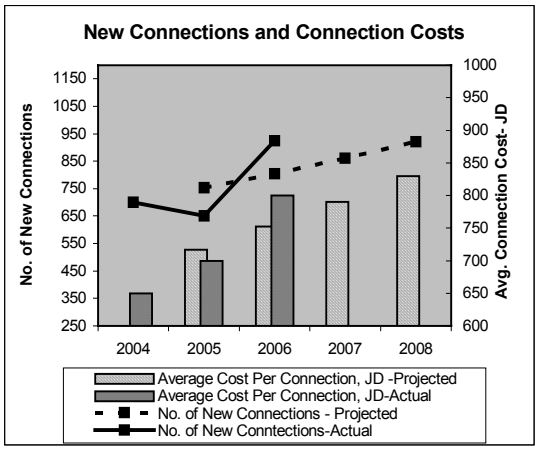


Figure 2.1.5 System Expansion Rate and Cost of New Connections

New connections must be made at a rate in excess of 50 per month to meet the target for service expansion. A property survey, design and estimate must be prepared for each new service application and arrangements made for installation either under contract or by AWC staff. The AWC's policy is to complete the installation of new service connections within 30 days of receipt of the application and payment of the connection fee. Connection costs, which must be borne by the applicant are considered affordable; future increases in connection costs will be no more than the annual rate of inflation. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

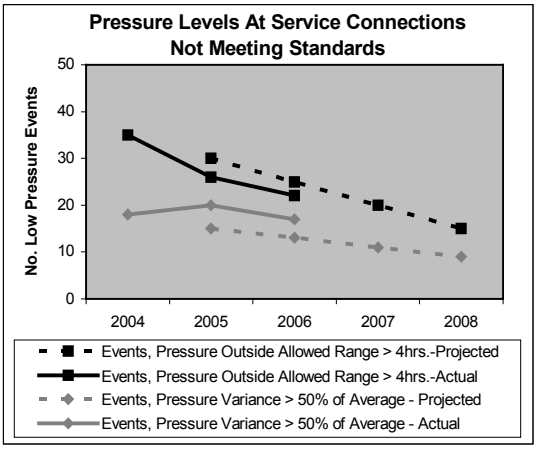


Figure 2.1.6 Pressure Levels At Service Connections Not Meeting Standards

Provisions of the Development Agreement and the Assignment Agreement stipulate that AWC shall maintain pressures at customer service connections within set minimum and maximum ranges, with special provisions for designated pressure areas. Other provisions set limits on pressure variances from average pressures that occur during normal conditions. As a practical matter, reports on these matters will be made on an "exception" basis wherein the reports only include data on occasions during the year when pressures were found not to be in compliance with the standards. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

Annex 2.2

Physical Indicators for Wastewater Services
(Data for Illustration Only)

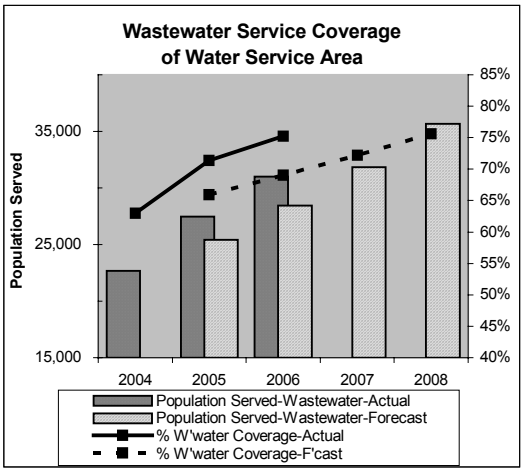


Figure 2.2.1 - Trends in Population Served by Wastewater System

Wastewater service coverage as a percent of the population provided with piped water is projected to increase from 63% in 2004 to 76% in 2004; this is based on future development of wastewater facilities in parallel with all water service extensions, plus a systematic "filling in" of existing unsewered water customers. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

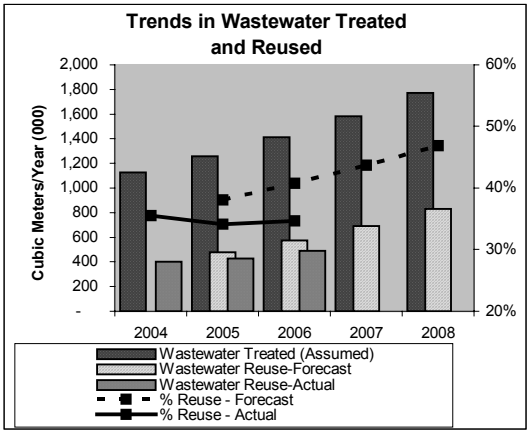


Figure 2.2.2 Trends in Wastewater Treated and Reused

Projected trends in wastewater collection and treatment and the portion recycled for productive uses are shown in the graphic. Wastewater collection and treatment will increase in line with system expansion and reuse will increase as demand increases from various agricultural and recreational developments which are projected to be implemented within the forecast period. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

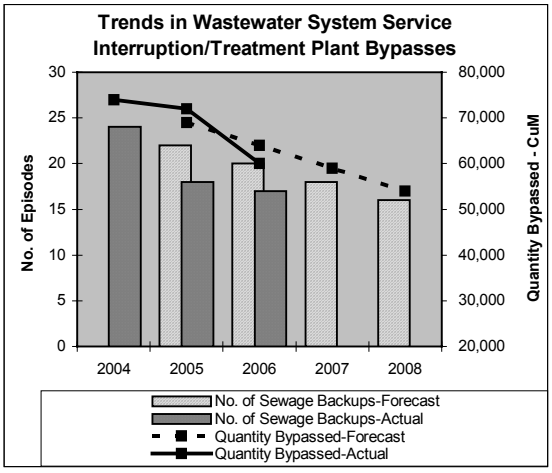


Figure 2.2.3 - Trends in Wastewater Service Reliability Measures

Reliability measures include sewage flooding/backup events and treatment plant bypassing episodes. Service interruptions occur when blockage in the sewerage system, cause flooding or backups to occur. Treatment plant bypasses can occur when equipment failures or scheduled maintenance result in pumping or treatment facilities being temporarily taken out of service. The AWC is implementing programs aimed at reducing both the number and severity of such episodes occuring each year. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

Annex 2.2(2)

Physical Indicators for Wastewater Services (Continued)
(Data for Illustration Only)

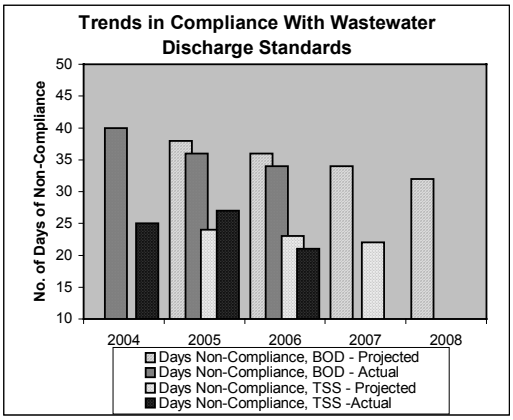


Figure 2.2.4 - Trends in Effluent Quality

The primary discharge standards (to Non-Potable waters) are 60 and 50 mg/l respectively for BOD and TSS. Standards for other parameters such as dissolved solids, nitrates and dissolved oxygen, are also targets, but initial priority is being given to BOD and TSS. Seasonal and other factors combine to create conditions when plant effluent is not in compliance. The AWC is taking steps to reduce the duration of non-compliance periods, through plant modifications and refinements of operating procedures. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

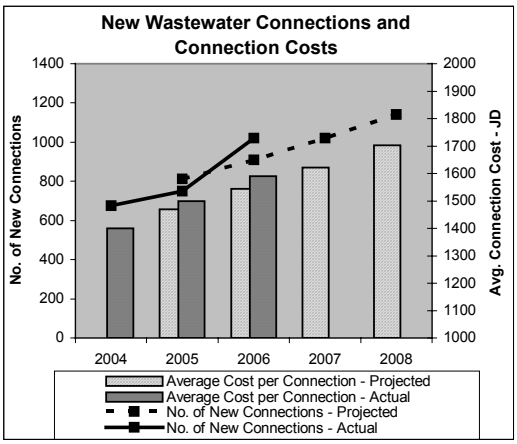


Figure 2.2.5 - Wastewater System Growth Rate and Cost of New Connections

Sewer connections must be made at a rate in excess of the rate of new water service connections, in order to meet AWC targets. Requiring a significantly greater construction effort than water connections, sewer connections are also more costly. To facilitate payment of new connection costs, an installment payment plan is offered to new customers. Future increases in connection costs will be no more than the annual rate of inflation. AWC's policy is to complete the installation of new sewer connections within 30 days of receipt of the application and connection fee. (**Note**: actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

Annex 2.3
Performance Indicators for the Aqaba Water Company
(Data for Illustration Only)

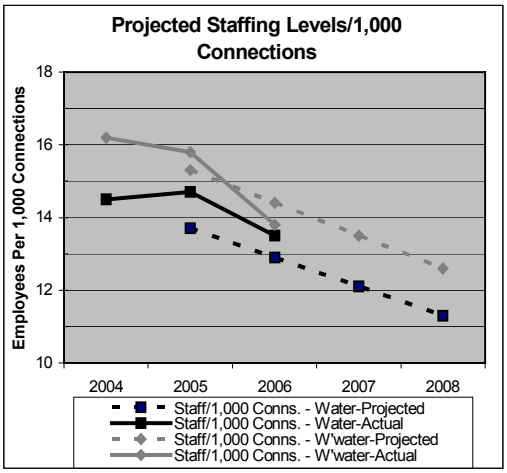


Figure 2.3.1 - Trends in Staffing for Water and Wastewater Services

AWC staffing levels for both the water and wastewater components are considered higher than required for optimum performance. A number of programs are being implemented which are designed to alleviate this situation, thus improving overall organizational efficiency. Staff reductions will be sought in all areas including administrative and managerial positions as well as positions in operating and maintenance units. Staff reductions are coupled with training and other programs to upgrade skill levels sufficiently to support smaller staff complements. (**Note:**actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

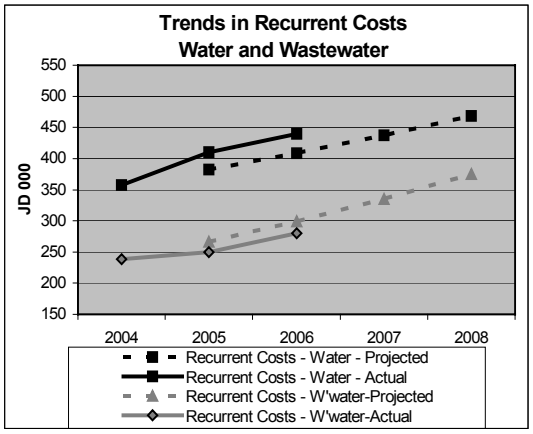


Figure 2.3.2 Projected Trends in Recurrent Costs

Recurrent costs are estimated to increase in parallel with the increases in the quantity of water sold and the volume of wastewater collected and treated. In this respect, AWC programs aimed at improving the efficiency of operations and the effectiveness of maintenance programs are assumed to keep the unit costs constant (170 fils per M^3 for water and 180 fils per M^3 for wastewater, both in terms of water sales volume). (**Note**:actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

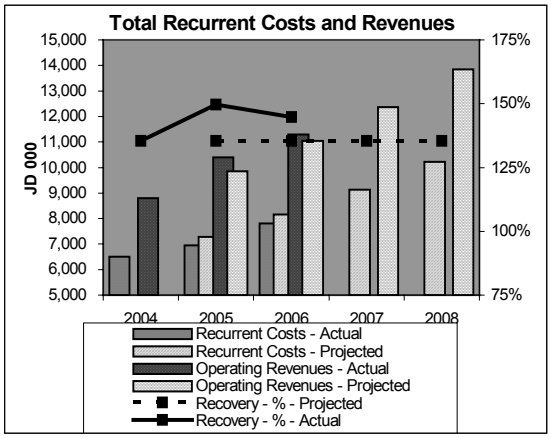


Figure 2.3.3 Projected Trends in Recovery of Recurrent Costs

A principal objective of the AWC is to gradually implement programs for improving efficiency and productivity that will alllow it to continue to generate substantial net incomes and cash surpluses throughout the business planning period (e.g. to 2008). Programs being implemented toward this end include cost reduction/efficiency enhancing measures, water loss reduction, improvement of collection efficiency, improvement of tariff structure and gradual increases in tariffs. (**Note:** actual results will be plotted year by year against these targets.)

Annex 2.3 (2)

Performance Indicators for the Aqaba Water Company (Continued)
(Data for Illustration Only)

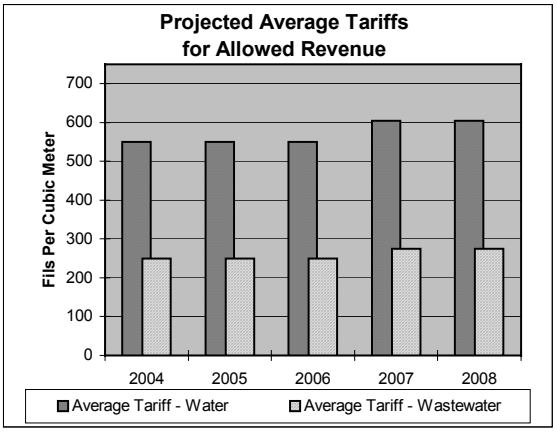


Figure 2.3.4 - Tariffs Required to Meet Allowed Revenue Target in 2008

The AWC seeks to continue to generate substantial profits, while maintaining tariffs at constant levels in real terms (e.g. keeping pace with inflation only). Average tariffs required to achieve this goal are shown in the graph. This assumes that increases in operating expenses per unit (M^3 sold) can be held to a minimum through various improvements in operating and maintenance programs. Failing to keep pace with inflation will result in declining levels of net income. (**Note:** Actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

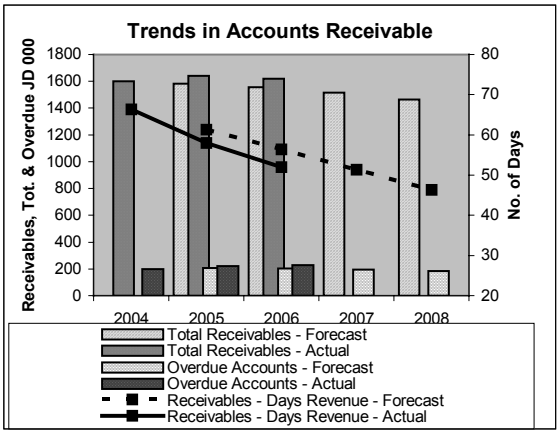


Figure 2.3.5 - Trends in Collection Performance

The AWC is undertaking a number of measures designed to improve its collection performance. The principal indicators are total accounts receivable, number of days revenue in receivables and the amount of accounts receivable in arrears. The establishment of decentralized commercial centers will facilitate customer payments and the computerized revenue system will enhance AWC's ability to vigorously pursue accounts falling into arrears. Overdue accounts are thus projected to decline from 6% of revenue in 2004 to 2.5% of revenue in 2008, with a similar reduction in total receivables. (Note:actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)

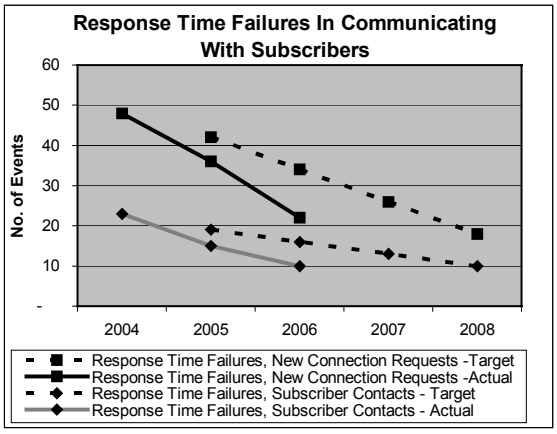


Figure 2.3.6 - Response Time Failures In Communicating With Subscribers

Under the terms of both the Development Agreement and the Assignment Agreement, AWC is required to be responsive to all requests from subscribers or to those seeking to become subscribers. For example response must be given to any person wishing to apply for a new connection within 5 working days and the new connection must be completed within 30 days of receipt of payment for the connection fee. Response to subscriber general inquiries, requests or complaints must be made within 5 working days. Reporting will be made on an "exception" basis. (**Note:** Actual results will be plotted year by year as they become available; projections will be revised periodically if deemed appropriate.)